Table Structure

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PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Table: PLOT

Column Name	Coded ?	Measurement Units	Data Type
PLOT_ID	No	sequential number	integer
DATA_SOURCE	Yes		character (text)
FOREST_OR_BLM_DISTRICT	Yes		integer
CNTY	Yes		integer
PLOT	No	sequential number	integer
ASSESSMENT_DATE	No	date	character (text)
DATA_SOURCE_NAME	Yes		character (text)
ELEV_FT	No	ft	integer
ELEV_M	No	m	integer
FOREST_DISTRICT	Yes		integer
FOREST_PROCLAIMED	Yes		integer
FVS_VARIANT	Yes		character (text)
HALF_STATE	Yes		character (text)
OCCASION_NUM	Yes		integer
PROXY_YN	Yes		character (text)
STATE	Yes		integer
SUBPLOT_COUNT_PLOT	No	count	real number (decimal)
SURVEY_UNIT_FIA	Yes		integer

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INTEGRATED DATABASE
TABLE STRUCTURE

Table: PLOT_COORDINATES

Column Name	Coded ?	Measurement Units	Data Type
PLOT_ID	No	sequential number	integer
LATITUDE_FUZZ	No	seconds	real number (decimal)
LONGITUDE_FUZZ	No	seconds	real number (decimal)

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PNW- FIA
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TABLE STRUCTURE

Table: PLOT_EXTRA

Column Name	Coded ?	Measurement Units	Data Type
PLOT_ID	No	sequential number	integer
BAILEY_CODE	Yes		character (text)
BAILEY_PROVINCE_CODE	Yes		integer
BAILEY_PROVINCE	No		character (text)
BAILEY_SECTION	No		character (text)
OMERNIK_CODE	Yes		integer
OMERNIK_ECOREGION	No		character (text)

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TABLE STRUCTURE

Table: COND

Column Name	Coded ?	Measurement Units	Data Type
COND_ID	n	sequential number	integer
DATA_SOURCE	y		character (text)
PLOT_ID	n	sequential number	integer
COND_CLASS	y		integer
ACRES	n	acres	real number (decimal)
ACRES_VOL	n	acres	real number (decimal)
ACRES_VOL_MORT	n	acres	real number (decimal)
ASPECT_DEG	y		integer
ASPECT_DIRECTION	y		character (text)
COND_WT	n	proportion	real number (decimal)
FOR_TYPE	y		integer
FOR_TYPE_GRP	y		character (text)
FOR_TYPE_SECDRY	y		integer
GLC	y		integer
GLC_GROUP	y		integer
GRID_WT_FAC	n		real number (decimal)
GRID_WT_MORT_FAC	n		real number (decimal)
MAI	n	ft3/ac/yr	real number (decimal)
OWNER	y		integer
OWN_GROUP	y		integer
PLANT_ASSOC_CODE	y		character (text)
QMD_HWD_CM	n	cm	real number (decimal)
QMD_SWD_CM	n	cm	real number (decimal)
QMD_TOT_CM	n	cm	real number (decimal)
REM_PERIOD	n	years	integer
RESERVED_TYPE	y		integer
RESERVED_YN	y		character (text)
SAMP_TYPE	y		integer
SAMPLING_WT_FAC	n		real number (decimal)
SAMPLING_WT_MORT_FAC	n		real number (decimal)
SITE_CLASS_DUNNINGS	y		integer
SITE_CLASS_FIA	y		integer
SITE_INDEX_METHOD	y		integer
SITE_INDEX_DUNNINGS	n		integer
SITE_INDEX_FIA	n		integer
SITE_SPECIES	y		integer
SLIVER_YN	y		character (text)
SLOPE	y		integer

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TABLE STRUCTURE

Table: COND

Column Name	Coded ?	Measurement Units	Data Type
STAND_AGE	Yes		integer
STAND_AGE_EVEN_YN	Yes		character (text)
STAND_SIZE_CLASS	Yes		integer
STOCKABLE_AREA_PROP	No	proportion	real number (decimal)
STRATUM_ID	No	sequential number	integer
STRATUM_VOL_ID	No	sequential number	integer
SUBPLOT_COUNT_COND	No	count	real number (decimal)
TREES_LIVE_YN	Yes		character (text)
TREES_MORT_YN	Yes		character (text)
CWD_sampled	Yes		integer
LIVE_TREES_sampled_YN	Yes		character (text)
MORTALITY_sampled_YN	Yes		character (text)
SNAGS_sampled_YN	Yes		character (text)
STATE	Yes		integer
FOREST_OR_BLM_DISTRICT	Yes		integer
CNTY	Yes		integer
PLOT	No		integer

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INTEGRATED DATABASE
TABLE STRUCTURE

Table: COND_EXTRA

Column Name	Coded ?	Measurement Units	Data Type
COND_ID	No	sequential number	integer
DATA_SOURCE	Yes		character (text)
ACRES_CNTY	Yes	acres	real number (decimal)
ACRES_CNTY_VOL	No	acres	real number (decimal)

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TABLE STRUCTURE

Table: TREE_LIVE

Column Name		Coded ?	Measurement Units	Data Type
TREE_LIVE_ID	(unique in table)	No	sequential number	integer
DATA_SOURCE		Yes		character (text)
PLOT_ID		No	number	integer
COND_ID		No	number	integer
ALLTREE_ID	(unique in table)	No	number	integer
SUBPLOT_ID		No	number	integer
SUBPLOT_NUM		Yes		integer
AGE_BH		No	years	integer
AGE_TTL		No	years	integer
AHG_FT		No	ft	real number (decimal)
AHG_M		No	m	real number (decimal)
ASDG_CM2		No	cm2	real number (decimal)
ASDG_IN2		No	in2	real number (decimal)
BA_FT2		No	ft2	real number (decimal)
BA_FT2_AC		No	ft2/ac	real number (decimal)
BA_M2		No	m2	real number (decimal)
BA_M2_HA		No	m2/ha	real number (decimal)
BIOM_AC_ABV_GRND_TON		No	tons/acre	real number (decimal)
BIOM_AC_BARK_TON		No	tons/acre	real number (decimal)
BIOM_AC_BOLE_MERCH_TON		No	tons/acre	real number (decimal)
BIOM_AC_BOLE_TTL_TON		No	tons/acre	real number (decimal)
BIOM_AC_BRANCH_TON		No	tons/acre	real number (decimal)
BIOM_TR_ABV_GRND_TON		No	tons	real number (decimal)
BIOM_TR_BARK_TON		No	tons	real number (decimal)
BIOM_TR_BOLE_MERCH_TON		No	tons	real number (decimal)
BIOM_TR_BOLE_TTL_TON		No	tons	real number (decimal)
BIOM_TR_BRANCH_TON		No	tons	real number (decimal)
BIOM_WOOD_DENS		No	lbs/ft3	real number (decimal)
BIOM_WOOD_SPEC_GRAV		No		real number (decimal)
BORED_YN		Yes		character (text)
CROWN_CLASS		Yes		integer
CROWN_RATIO		Yes		integer
CROWN_WIDTH		No	ft	integer
CROWN_EST_METHOD		Yes		integer
CULL_BD_FT		No	prop	real number (decimal)
CULL_CUBIC		No	prop	real number (decimal)
DBH_1YR_AGO_CM		No	cm	real number (decimal)
DBH_1YR_AGO_IN		No	in	real number (decimal)
DBH_CLASS		Yes		character (text)
DBH_CM		No	cm	real number (decimal)
DBH_IN		No	in	real number (decimal)
DBH_EST_METHOD		Yes		integer
DBH_INC_10YR_CM		No	cm	real number (decimal)
DBH_INC_10YR_IN		No	in	real number (decimal)
DBH_INC_EST_METHOD		Yes		integer

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INTEGRATED DATABASE
TABLE STRUCTURE

Table: TREE_LIVE

Column Name	Coded ?	Measurement Units	Data Type
DMG_AGENT_GROUP	Yes		integer
DMG_AGENT_REGION5	Yes		integer
DMG_AGENT1_CODE	Yes		integer
DMG_AGENT1_SEVERITY	Yes		integer
DMG_AGENT2_CODE	Yes		integer
DMG_AGENT2_SEVERITY	Yes		integer
DMG_AGENT3_CODE	Yes		integer
DMG_AGENT3_SEVERITY	Yes		integer
DWARF_MIST	Yes		integer
GS_TREE_YN	Yes		character (text)
GS_VOL_TREE_YN	Yes		character (text)
HT_1YR_AGO_FT	No	ft	real number (decimal)
HT_1YR_AGO_M	No	m	real number (decimal)
HT_FT	No	ft	integer
HT_M	No	m	real number (decimal)
HT_EST_METHOD	Yes		integer
HWD_FORM_CLASS	Yes		integer
MORT_RATE	No	proportion	real number (decimal)
PLOT_SIZE	Yes		integer
POLE_SIZE_YN	Yes		character (text)
PREV_DBH_CM	No	cm	real number (decimal)
PREV_DBH_IN	No	in	real number (decimal)
PREV_DBH_EST_METHOD	Yes		integer
PREV_HT_FT	No	ft	integer
PREV_HT_M	No	m	real number (decimal)
PREV_HT_EST_METHOD	Yes		integer
SAPLING_YN	Yes		character (text)
SAWTIMBER_YN	Yes		character (text)
SEEDLING_YN	Yes		character (text)
STAND_POS	Yes		integer
STK_EQN_RESULT	No	pct	real number (decimal)
STK_TYPE1	No	pct	real number (decimal)
STK_TYPE2	No	pct	real number (decimal)
STK_TYPE3	No	pct	real number (decimal)
STK_TYPE4	No	pct	real number (decimal)
TPA	No	trees/ac	real number (decimal)
TPA_SUBPLOT	No	trees/ac	real number (decimal)
TPH	No	trees/ha	real number (decimal)
TPH_SUBPLOT	No	trees/ha	real number (decimal)
TREE_CLASS	Yes		integer
TREE_COUNT	No	count	integer
TREE_HIST	Yes		integer
TREE_SPECIES	Yes		integer
TREE_TAG_NUM	No		integer
TREE_FLAG	Yes		integer

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INTEGRATED DATABASE
TABLE STRUCTURE

Table: TREE_LIVE

Column Name	Coded ?	Measurement Units	Data Type
VOL_AC_ANN_MORT_FT3	No	ft3/ac	real number (decimal)
VOL_AC_ANN_MORT_INTL_FT2	No	ft2/ac	real number (decimal)
VOL_AC_ANN_MORT_SCR_FT2	No	bdft, ft2/ac	real number (decimal)
VOL_AC_GRS_CA_GRW_FT3	No	ft3/ac	real number (decimal)
VOL_AC_GRS_CA_GRW_INTL_FT2	No	ft2/ac	real number (decimal)
VOL_AC_GRS_CA_GRW_SCR_FT2	No	bdft, ft2/ac	real number (decimal)
VOL_AC_GRS_CA_GRW_STEM_TTL_FT3	No	ft3/ac	real number (decimal)
VOL_AC_GRS_FT3	No	ft3/ac	real number (decimal)
VOL_AC_GRS_INTL_FT2	No	ft2/ac	real number (decimal)
VOL_AC_GRS_SCR_FT2	No	bdft,, ft2/ac	real number (decimal)
VOL_AC_GRS_STEM_SAWLOG_FT3	No	ft3/ac	real number (decimal)
VOL_AC_GRS_STEM_UPR_FT3	No	ft3/ac	real number (decimal)
VOL_AC_GRS_STEM_TTL_FT3	No	ft3/ac	real number (decimal)
VOL_AC_NET_CA_GRW_FT3	No	ft3/ac	real number (decimal)
VOL_AC_NET_CA_GRW_INTL_FT2	No	ft2/ac	real number (decimal)
VOL_AC_NET_CA_GRW_SCR_FT2	No	bdft, ft2/ac	real number (decimal)
VOL_AC_NET_FT3	No	ft3/ac	real number (decimal)
VOL_AC_NET_INTL_FT2	No	ft2/ac	real number (decimal)
VOL_AC_NET_SCR_FT2	No	bdft, ft2/ac	real number (decimal)
VOL_AC_NET_STEM_SAWLOG_FT3	No	ft3/ac	real number (decimal)
VOL_AC_NET_STEM_UPR_FT3	No	ft3/ac	real number (decimal)
VOL_TR_GRS_CA_GRW_FT3	No	ft3	real number (decimal)
VOL_TR_GRS_CA_GRW_INTL_FT2	No	ft2	real number (decimal)
VOL_TR_GRS_CA_GRW_SCR_FT2	No	bdft, ft2	real number (decimal)
VOL_TR_GRS_CA_GRW_STEM_TTL_FT3	No	ft3	real number (decimal)
VOL_TR_GRS_FT3	No	ft3	real number (decimal)
VOL_TR_GRS_INTL_FT2	No	ft2	real number (decimal)
VOL_TR_GRS_SCR_FT2	No	bdft, ft2	real number (decimal)
VOL_TR_GRS_STEM_SAWLOG_FT3	No	ft3	real number (decimal)
VOL_TR_GRS_STEM_UPR_FT3	No	ft3	real number (decimal)
VOL_TR_GRS_STEM_TTL_FT3	No	ft3	real number (decimal)
VOL_TR_NET_FT3	No	ft3	real number (decimal)
VOL_TR_NET_INTL_FT2	No	ft2	real number (decimal)
VOL_TR_NET_SCR_FT2	No	bdft, ft2	real number (decimal)
VOL_TR_NET_STEM_SAWLOG_FT3	No	ft3	real number (decimal)
VOL_TR_NET_STEM_UPR_FT3	No	ft3	real number (decimal)
STATE	Yes	code value	integer
FOREST_OR_BLM_DISTRICT	Yes	code value	integer
CNTY	Yes	code value	integer
PLOT	No		integer
COND_CLASS	No		integer

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TABLE STRUCTURE

Table: TREE_DEAD

Column Name		Coded ?	Measurement Units	Data Type
TREE_DEAD_ID	(unique in table)	No	sequential number	integer
DATA_SOURCE		Yes		character (text)
PLOT_ID		No	sequential number	integer
COND_ID		No	sequential number	integer
SUBPLOT_ID		No	sequential number	integer
ALLTREE_ID		No	sequential number	integer
BA_FT2		No	ft2	real number (decimal)
BA_FT2_AC		No	ft2/ac	real number (decimal)
BA_M2		No	m2	real number (decimal)
BA_M2_HA		No	m2/ha	real number (decimal)
BIOM_AC_LBS		No	lbs/acre	real number (decimal)
BIOM_HA_KG		No	kg/ha	real number (decimal)
BIOM_TR_LBS		No	lbs	real number (decimal)
BIOM_TR_KG		No	kg	real number (decimal)
BIOM_WOOD_DENS		No	lbs/ft3	real number (decimal)
BIOM_WOOD_SPEC_GRAV		No		real number (decimal)
CARBON_AC_LBS		No	lbs/acre	real number (decimal)
CARBON_HA_KG		No	kg/ha	real number (decimal)
DBH_CLASS		Yes		character (text)
DBH_CM		No	cm	field measurement
DBH_IN		No	in	real number (decimal)
DCR_SNAG		No		real number (decimal)
DECAY_SNAG		Yes		integer
HT_ACTUAL_FT		No	ft	real number (decimal)
HT_ACTUAL_M		No	m	real number (decimal)
HT_ACTUAL_EST_METHOD		Yes		integer
HT_TOTAL_FT		No	ft	real number (decimal)
HT_TOTAL_M		No	m	real number (decimal)
HT_TOTAL_EST_METHOD		Yes		integer
MORTALITY_YN		Yes		character (text)
PLOT_SIZE		Yes		integer
SNAG_WILDLIFE_USE		Yes		integer
TPA		No	trees/ac	real number (decimal)
TPH		No	trees/ha	real number (decimal)
TPA_SUBPLOT		No	trees/ac	real number (decimal)
TPH_SUBPLOT		No	trees/ha	real number (decimal)
TREE_COUNT		No	count	integer
TREE_HIST		Yes		integer
TREE_SPECIES_GROUP		Yes		character (text)
TREE_SPECIES_ALPHA		Yes		character (text)
TREE_SPECIES		Yes		integer
TREE_TAG_NUM		No		integer
VOL_AC_FT3		No	ft3/ac	real number (decimal)
VOL_HA_M3		No	m3/ha	real number (decimal)
VOL_TR_FT3		No	ft3	real number (decimal)
VOL_TR_M3		No	m3/ha	real number (decimal)
STATE		Yes		integer
FOREST_OR_BLM_DISTRICT		Yes		integer
CNTY		Yes		integer
PLOT		No		integer
COND_CLASS		No		integer
SUBPLOT_NUM		No		integer
FIA_LINENUM		No		integer

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TABLE STRUCTURE

Table: DOWN_WOOD

Column Name	Coded ?	Measurement Units	Data Type
DOWN_WOOD_ID (unique in table)	No	sequential number	integer
DATA_SOURCE	Yes		character (text)
PLOT_ID	No	sequential number	integer
COND_ID	No	sequential number	integer
SUBPLOT_ID	No	sequential number	integer
TRANSECT_ID	No	sequential number	integer
BIOM_AC_LBS	No	lbs/ac	real number (decimal)
BIOM_HA_KG	No	kg/ha	real number (decimal)
BIOM_LOG_LBS	No	lbs	real number (decimal)
BIOM_LOG_KG	No	kg	real number (decimal)
BIOM_WOOD_DENS	No		real number (decimal)
BIOM_WOOD_SPEC_GRAV	No		real number (decimal)
CARBFAC	No		real number (decimal)
CARBON_AC_LBS	No	lbs/ac	real number (decimal)
CARBON_HA_KG	No	kg/ha	real number (decimal)
DCR_DWD	No		real number (decimal)
DECAY	Yes		integer
DECAY_orig	Yes		integer
DIAM_S_CM	No	cm	real number (decimal)
DIAM_I_CM	No	cm	real number (decimal)
DIAM_L_CM	No	cm	real number (decimal)
DIAM_S_IN	No	in	real number (decimal)
DIAM_I_IN	No	in	real number (decimal)
DIAM_L_IN	No	in	real number (decimal)
LINEAR_FEET_AC	No	ft/ac	real number (decimal)
LINEAR_METERS_HA	No	m/ha	real number (decimal)
LOG_LENGTH_M	No	m	real number (decimal)
LOG_LENGTH_FT	No	ft	real number (decimal)
LOGS_AC	No	logs/ac	real number (decimal)
LOGS_HA	No	logs/ha	real number (decimal)
LPA_SUBPLOT_R5	No	logs/ac	real number (decimal)
LPH_SUBPLOT_R5	No	logs/ha	real number (decimal)
PERCENT_COVER_EST	No	percent	real number (decimal)
TL_COND_HD_FT	No	ft	real number (decimal)
TL_COND_HD_M	No	m	real number (decimal)
TL_SUBPLOT_HD_FT	No	ft	real number (decimal)
TL_SUBPLOT_HD_M	No	m	real number (decimal)
TREE_SPECIES	Yes		integer
TREE_SPECIES_GROUP	Yes		character (text)
TREE_SPECIES_ALPHA	Yes		character (text)
USAGE	Yes		integer
VOL_AC_FT3	No	ft3/ac	real number (decimal)
VOL_HA_M3	No	m3/ac	real number (decimal)
VOL_LOG_FT3	No	ft3	real number (decimal)
VOL_LOG_M3	No	m3	real number (decimal)
STATE	Yes		integer
FOREST_OR_BLM_DISTRICT	Yes		integer
CNTY	Yes		integer
PLOT	No		integer
COND_CLASS	No		integer
SUBPLOT_NUM	No		integer
FIA_LINENUM	No		integer
R5_LOGNUM	No		integer

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TABLE STRUCTURE

Table: TREE_MORT

Column Name		Coded ?	Measurement Units	Data Type
ID	(unique in table)	n	sequential number	integer
DATA_SOURCE		y		character (text)
COND_ID		n	sequential number	integer
ALLTREE_ID	(unique in table)	n	sequential number	integer
SUBPLOT_ID		n	sequential number	integer
SUBPLOT_NUM		y		integer
BA_FT2		n	ft2	real number (decimal)
BA_FT2_AC		n	ft2/ac	real number (decimal)
BA_M2		n	m2	real number (decimal)
BA_M2_HA		n	m2/ha	real number (decimal)
BIOM_AC_BOLE_TTL_TON		n	tons/acre	real number (decimal)
BIOM_TR_BOLE_TTL_TON		n	tons	real number (decimal)
BIOM_WOOD_DENS		n	lbs/ft3	real number (decimal)
BIOM_WOOD_SPEC_GRAV		n		real number (decimal)
DBH_CLASS		y		character (text)
DBH_CM		n	cm	field measurement
DBH_IN		n	in	real number (decimal)
DBH_EST_METHOD		y		integer
DMG_AGENT_GROUP		y		integer
DMG_AGENT_REGION5		y		integer
DMG_AGENT1_CODE		y		integer
DMG_AGENT1_SEVERITY		y		integer
DMG_AGENT2_CODE		y		integer
DMG_AGENT2_SEVERITY		y		integer
DMG_AGENT3_CODE		y		integer
DMG_AGENT3_SEVERITY		y		integer
HT_FT		No	ft	real number (decimal)
HT_M		No	m	real number (decimal)
HT_EST_METHOD		Yes		integer
HT_ACTUAL_FT		No	ft	real number (decimal)
HT_ACTUAL_M		No	m	real number (decimal)
HT_ACTUAL_EST_METHOD		Yes		integer
PLOT_SIZE		Yes		integer
TPA		No	trees/ac	real number (decimal)
TPA_SUBPLOT		No	trees/ac	real number (decimal)
TPH		No	trees/ha	real number (decimal)
TPH_SUBPLOT		No	trees/ha	real number (decimal)
TREE_COUNT		No	count	integer
TREE_FLAG		Yes		integer
TREE_HIST		Yes		integer
TREE_SPECIES		Yes		integer
TREE_TAG_NUM		No		integer
VOL_AC_GRS_FT3		No	ft3/ac	real number (decimal)
VOL_AC_GRS_STEM_TTL_FT3		No	ft3/ac	real number (decimal)
VOL_TR_GRS_FT3		No	ft3	real number (decimal)
VOL_TR_GRS_STEM_TTL_FT3		No	ft3	real number (decimal)

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TABLE STRUCTURE

Table: TREE_SITE

Column Name		Coded ?	Measurement Units	Data Type
ID	(unique in table)	No	sequential number	integer
DATA_SOURCE		Yes		character (text)
COND_ID		No	sequential number	integer
ALLTREE_ID	(unique in table)	No	sequential number	integer
SUBPLOT_ID		No	sequential number	integer
PLOT_ID		No	sequential number	integer
SUBPLOT_NUM		Yes		integer
AGE_BH		No	years	integer
DBH_CM		No	cm	real number (decimal)
DBH_IN		No	in	real number (decimal)
HT_FT		No	ft	integer
HT_M		No	m	real number (decimal)
SITE_INDEX		No		integer
SITE_INDEX_EQN		Yes		integer
TREE_SPECIES		Yes		integer
TREE_TAG_NUM		No		integer

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TABLE STRUCTURE

Table: SUBPLOT

Column Name	Coded ?	Measurement Units	Data Type
SUBPLOT_ID	No	sequential number	integer
DATA_SOURCE	Yes		character (text)
COND_ID	No	sequential number	integer
SUBPLOT_NUM	Yes		integer
ASPECT_DEG	Yes		integer
ASPECT_DIRECTION	Yes		character (text)
COND_CLASS	Yes		integer
COND_WT_SUBPLOT	No	pct	real number (decimal)
FIELD_SUBPLOT_NUMBER	No		character (text)
LIVE_TREES_PRESENT_YN	Yes		character (text)
MORTALITY_SAMPLED_YN	Yes		character (text)
NONSTK_NONFOR_AREA_PCT	No	pct	real number (decimal)
PLANT_ASSOC_CODE	Yes		character (text)
SLOPE	Yes		integer
SUBPLOT_CENTR_COND_YN	No		character (text)

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TABLE STRUCTURE

Table: STRATUM

Column Name	Coded ?	Measurement Units	Data Type
STRATUM_ID	No	sequential number	integer
SCHEME	No		integer
STRATUM_NAME	No		character (text)
STRATUM_ACRES	No	acres	real number (decimal)
STRATUM_SIZE	No		real number (decimal)
PHOTO_POINT_COUNT	No	count	integer
FIELD_PLOT_COUNT	No	count	integer
PLOT_AREA_IN_STRATUM	No	acres	real number (decimal)
GRID_SPACING	No		character (text)

Brief Description of each Column Name

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
COND	ACRES	Condition class acres. The number of acres the condition represents in the inventory.
COND	ACRES_VOL	Area expansion factor to expand per-acre estimates for a tree.
COND	ACRES_VOL_MORT	Area expansion factor to expand per-acre estimates for a tree.
COND	ASPECT_DEG	Aspect of the condition class, in degrees
COND	ASPECT_DIRECTION	Aspect of the condition class, in written form
COND	CNTY	County code
COND	COND_CLASS	Condition class code
COND	COND_ID	Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]
COND	COND_WT	Condition class weight
COND	CWD_sampled	Indicates that a condition was sampled for CWD
COND	DATA_SOURCE	Identifies the source of the inventory data.
COND	FOR_TYPE	Forest type
COND	FOR_TYPE_GRP	Forest type species group
COND	FOR_TYPE_SECDRY	Forest type, second level, indicates a mixed stand
COND	FOREST_OR_BLM_DISTRICT	Administrative National Forest code
COND	GLC	Ground land class
COND	GLC_GROUP	Ground land class grouping code
COND	GRID_WT_FAC	A weight factor for sample intensity
COND	GRID_WT_MORT_FAC	A weight factor for sample intensity where mortality was measured
COND	Live_trees_sampled_YN	Indicates that a condition was sampled for live trees
COND	MAI	Mean annual increment
COND	Mortality_sampled_YN	Indicates that a condition was sampled for recent mortality trees
COND	OWN_GROUP	Broad owner group
COND	OWNER	Detailed owner group
COND	PLANT_ASSOC_CODE	Plant association code
COND	PLOT	Original plot number
COND	PLOT_ID	Unique number assigned to each plot row in the entire PLOT table, [Key field]
COND	QMD_HWD_CM	Quadratic mean diameter of the hardwood component of the forest
COND	QMD_SWD_CM	Quadratic mean diameter of the softwood component of the forest
COND	QMD_TOT_CM	Quadratic mean diameter of the forest
COND	REM_PERIOD	Remeasurement period
COND	RESERVED_TYPE	Reserve status code
COND	RESERVED_YN	Indicates whether the plot is reserved or not.
COND	SAMP_TYPE	Sample type
COND	SAMPLING_WT_FAC	Sampling weight factor for estimating weighted means
COND	SAMPLING_WT_MORT_FAC	Sampling weight factor for estimating weighted means of mortality data
COND	SITE_CLASS_DUNNINGS	Dunnings site class

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
COND	SITE_CLASS_FIA	Site class for the condition class
COND	SITE_INDEX_DUNNINGS	Dunnings site Index for timberland conditions
COND	SITE_INDEX_FIA	Site Index for the forest condition
COND	SITE_INDEX_METHOD	Site index estimation method
COND	SLIVER_YN	Indicates whether a condition class is a "sliver"
COND	SLOPE	Average slope within the condition on the plot
COND	Snags_sampled_YN	Indicates that a condition was sampled for standing dead trees
COND	STAND_AGE	Age class of the forest stand.
COND	STAND_AGE_EVEN_YN	Indicates whether the stand is even or uneven aged.
COND	STAND_SIZE_CLASS	Stand size class for the condition
COND	STATE	State where the plot is located
COND	STOCKABLE_AREA_PROP	Proportion of stockable area within a condition
COND	STRATUM_ID	Unique number assigned to each stratum in the table. [Key Field]
COND	STRATUM_VOL_ID	Unique number assigned to each stratum in the table. [Key Field]
COND	SUBPLOT_COUNT_COND	Count of all subplots in the condition.
COND	TREES_LIVE_YN	Indicates if live trees were tallied and present on the condition
COND	TREES_MORT_YN	Indicates if mortality trees were tallied and present on the condition

COND_EXTRA	ACRES_CNTY	Condition class acres, stratified at the county level for FIA. The number of acres the condition represents in the inventory.
COND_EXTRA	ACRES_CNTY_VOL	Area expansion factor (stratified at the county level for FIA) to expand per-acre estimates for a tree.
COND_EXTRA	COND_ID	Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]
COND_EXTRA	DATA_SOURCE	Identifies the source of the inventory data.

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
DOWN_WOOD	BIOM_AC_LBS	Biomass (oven-dry weight) of the down log, in lbs/acre
DOWN_WOOD	BIOM_HA_KG	Biomass (oven-dry weight) of the down log, in kg/ha
DOWN_WOOD	BIOM_LOG_KG	Biomass (oven-dry weight) of the individual down log, in kilograms
DOWN_WOOD	BIOM_LOG_LBS	Biomass (oven-dry weight) of the individual down log, in pounds
DOWN_WOOD	BIOM_WOOD_DENS	Density of wood for a species, in pounds/cubic foot.
DOWN_WOOD	BIOM_WOOD_SPEC_GRAV	Specific gravity of wood for a given species
DOWN_WOOD	CARBFAC	Carbon conversion factor
DOWN_WOOD	CARBON_AC_LBS	The amount of carbon per acre the down wood represents, in pounds/ac
DOWN_WOOD	CARBON_HA_KG	The amount of carbon per hectare the down wood represents, in kg/ha
DOWN_WOOD	CNTY	County code
DOWN_WOOD	COND_CLASS	Condition class code
DOWN_WOOD	COND_ID	Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]
DOWN_WOOD	DATA_SOURCE	Identifies the source of the inventory data.
DOWN_WOOD	DCR_DWD	Decay class reduction factor
DOWN_WOOD	DECAY	The decay class of the down wood, using a 3-class system
DOWN_WOOD	DECAY_orig	The original decay class recorded in the field
DOWN_WOOD	DIAM_I_CM	Diameter of the down log at the point of intersection, in cm
DOWN_WOOD	DIAM_I_IN	Diameter of the down log at the point of intersection, in inches
DOWN_WOOD	DIAM_L_CM	Diameter of the down log at the large end, in cm
DOWN_WOOD	DIAM_L_IN	Diameter of the down log at the large end, in inches
DOWN_WOOD	DIAM_S_CM	Diameter of the down log at the small end, in cm
DOWN_WOOD	DIAM_S_IN	Diameter of the down log at the small end, in inches
DOWN_WOOD	DOWN_WOOD_ID	Unique number assigned to each row in the DOWN_WOOD table.
DOWN_WOOD	FIA_LINENUM	Unique number for each line or record of an FIA plot
DOWN_WOOD	FOREST_OR_BLM_DISTRICT	Administrative National Forest code
DOWN_WOOD	LINEAR_FEET_AC	The amount of linear feet per acre the log represents
DOWN_WOOD	LINEAR_METERS_HA	The amount of linear meters per hectare the log represents
DOWN_WOOD	LOG_AC	Number of logs per acre
DOWN_WOOD	LOG_HA	Number of logs per hectare
DOWN_WOOD	LOG_LENGTH_FT	Length of the log in feet
DOWN_WOOD	LOG_LENGTH_M	Length of the log in meters
DOWN_WOOD	LPA_SUBPLOT_R5	Number of logs per acre at the subplot level, R5 only
DOWN_WOOD	LPH_SUBPLOT_R5	Number of logs per hectare at the subplot level, R5 only
DOWN_WOOD	PERCENT_COVER_EST	An estimate of percent cover the log represents
DOWN_WOOD	PLOT	Original plot number
DOWN_WOOD	PLOT_ID	Unique number assigned to each plot row in the entire PLOT table, [Key field]
DOWN_WOOD	R5_LOGNUM	Unique number for each down log on a point for Region 5 plots

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
DOWN_WOOD	SUBPLOT_ID	Subplot ID: Unique number assigned to each row in the subplot table [Key field]
DOWN_WOOD	SUBPLOT_NUM	Subplot number on the plot
DOWN_WOOD	TL_COND_HD_FT	Total length of the transect line in the condition class on the plot, in feet
DOWN_WOOD	TL_COND_HD_M	Total length of the transect line in the condition class on the plot, in meters
DOWN_WOOD	TL_SUBPLOT_HD_FT	Length of the individual transect line in one condition class on the subplot, in feet
DOWN_WOOD	TL_SUBPLOT_HD_M	Length of the individual transect line in one condition class on the subplot, in meters
DOWN_WOOD	TRANSECT_ID	The original code that identifies a transect line on a subplot
DOWN_WOOD	TREE_SPECIES	A numeric code to identify tree species
DOWN_WOOD	TREE_SPECIES_GROUP	A text code to organize species into groups
DOWN_WOOD	USAGE	Wildlife use code
DOWN_WOOD	VOL_AC_FT3	Cubic volume per acre for the individual log, in ft3/ac
DOWN_WOOD	VOL_LOG_FT3	Cubic volume of the individual log, in ft3
DOWN_WOOD	VOL_LOG_M3	Cubic volume of the individual log, in m3
DOWN_WOOD	VOL_M3_HA	Cubic volume per hectare for the individual log, in m3/ha

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
PLOT	ASSESSMENT_DATE	Date the plot was visited or assessed by photo or map.
PLOT	CNTY	County code
PLOT	DATA_SOURCE	Identifies the source of the inventory data. [Key Field]
PLOT	DATA_SOURCE_NAME	Descriptive name for the source of the inventory data.
PLOT	ELEV_FT	Elevation of the plot area, in feet
PLOT	ELEV_M	Elevation of the plot area, in meters
PLOT	FOREST_DISTRICT	National Forest District code
PLOT	FOREST_OR_BLM_DISTRICT	Administrative National Forest code
PLOT	FOREST_PROCLAIMED	Proclaimed National Forest code
PLOT	FVS_VARIANT	Forest Vegetation Simulator Variant code
PLOT	HALF_STATE	Code indicating which half of Oregon and Washington contains the plot location.
PLOT	OCCASION_NUM	Occasion number of the current inventory
PLOT	PLOT	Original plot number
PLOT	PLOT_ID	Plot ID: Unique number assigned to each row in the plot table [Key field]
PLOT	PROXY_YN	Indicates that the plot is a proxy plot.
PLOT	STATE	State where the plot is located
PLOT	SUBPLOT_COUNT_PLOT	Count of the total number of subplots on the plot
PLOT	SURVEY_UNIT_FIA	PNW Survey unit code
PLOT	SURVEY_UNIT_FIA	Survey unit
PLOT_ COORDINATES	LATITUDE_FUZZ	Latitude of the plot location.
PLOT_ COORDINATES	LONGITUDE_FUZZ	Longitude of the plot location.
PLOT_ COORDINATES	PLOT_ID	Unique number assigned to each plot row in the entire PLOT table, [Key field]
PLOT_EXTRA	BAILEY_CODE	A code that identifies an Ecoregion, using Bailey's coding system.
PLOT_EXTRA	BAILEY_PROVINCE	The descriptive name of the Ecoregion Province.
PLOT_EXTRA	BAILEY_PROVINCE_CODE	A numeric code to identify the Bailey Ecoregion Province.
PLOT_EXTRA	BAILEY_SECTION	The descriptive name of the Ecoregion Section.
PLOT_EXTRA	OMERNIK_CODE	A numeric code to identify the OMERNIK Ecoregion.
PLOT_EXTRA	OMERNIK_ECOREGION	The descriptive name of the Omernik Ecoregion.
PLOT_EXTRA	PLOT_ID	Unique number assigned to each plot row in the entire PLOT table, [Key field]

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
STRATUM	FIELD_PLOT_COUNT	Count of field plot locations (m)
STRATUM	GRID_SPACING	Grid spacing
STRATUM	PHOTO_POINT_COUNT	Count of FIA photo points for the phase 1 sample (m')
STRATUM	PLOT_AREA_IN_STRATUM	The plot area in each stratum
STRATUM	SCHEME	Stratification Scheme
STRATUM	STRATUM_ACRES	Stratum Acres
STRATUM	STRATUM_ID	Unique number assigned to each stratum in the table. [Key Field]
STRATUM	STRATUM_NAME	A brief name associated with the stratum
STRATUM	STRATUM_SIZE	Size of the stratum (N)
SUBPLOT	ASPECT_DEG	Aspect in degrees -- Region 6 only
SUBPLOT	ASPECT_DIRECTION	Aspect in written form -- Region 6 only
SUBPLOT	COND_CLASS	Condition class code
SUBPLOT	COND_ID	Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]
SUBPLOT	COND_WT_SUBPLOT	The proportion of the subplot area in the condition.
SUBPLOT	DATA_SOURCE	Identifies the source of the inventory data
SUBPLOT	FIELD_SUBPLOT_NUMBER	Original subplot number recorded in the field on FIA plots
SUBPLOT	LIVE_TREES_PRESENT_YN	Code indicating whether live trees were sampled on this condition
SUBPLOT	NONSTK_NONFOR_AREA_PCT	Percent of nonstockable area on the subplot.
SUBPLOT	PLANT_ASSOC_CODE	Plant association code
SUBPLOT	SLOPE	Average slope on the subplot
SUBPLOT	SUBPLOT_CENTR_COND_YN	Indicates whether the condition crosses the center of the subplot.
SUBPLOT	SUBPLOT_ID	Subplot ID: Unique number assigned to each row in the subplot table [Key field]
SUBPLOT	SUBPLOT_NUM	Subplot number on the plot

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_DEAD	ALLTREE_ID	A unique code which identifies every tree (live or dead) in the database
TREE_DEAD	BA_FT2	Tree basal area in square feet
TREE_DEAD	BA_FT2_AC	Tree basal area, square feet per acre
TREE_DEAD	BA_M2	Tree basal area in square meters
TREE_DEAD	BA_M2_HA	Tree basal area, square meters per hectare
TREE_DEAD	BIOM_AC_LBS	Biomass (oven-dry weight) of the total tree stem, pounds per acre
TREE_DEAD	BIOM_HA_KG	Biomass (oven-dry weight) of the total stem, in kilograms per hectare
TREE_DEAD	BIOM_TR_KG	Biomass (oven-dry weight) of the individual tree, in kilograms
TREE_DEAD	BIOM_TR_LBS	Biomass (oven-dry weight) of the individual tree, in pounds
TREE_DEAD	BIOM_WOOD_DENS	Density of wood for a species, in pounds/cubic foot.
TREE_DEAD	BIOM_WOOD_SPEC_GRAV	Specific gravity of wood for a given species
TREE_DEAD	CARBON_AC_LBS	The amount of carbon per acre the dead tree represents, in pounds/acre
TREE_DEAD	CARBON_HA_KG	The amount of carbon per hectare the dead tree represents, In kilograms per hectare
TREE_DEAD	CNTY	County code
TREE_DEAD	COND_CLASS	Condition class code
TREE_DEAD	COND_ID	Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]
TREE_DEAD	DATA_SOURCE	Identifies the source of the inventory data.
TREE_DEAD	DBH_CLASS	Diameter class for the tree
TREE_DEAD	DBH_CM	Diameter at breast height, in centimeters
TREE_DEAD	DBH_IN	Diameter at breast height, in inches
TREE_DEAD	DCR_SNAG	Decay class reduction factor
TREE_DEAD	DECAY_SNAG	The decay class of the tree recorded in the field
TREE_DEAD	FIA_LINENUM	Unique number for each line or record of an FIA plot
TREE_DEAD	FOREST_OR_BLM_DISTRICT	Administrative National Forest code
TREE_DEAD	HT_ACTUAL_EST_METHOD	Method used to estimate actual tree height
TREE_DEAD	HT_ACTUAL_FT	Actual tree height, in feet
TREE_DEAD	HT_ACTUAL_M	Actual tree height, in meters
TREE_DEAD	HT_TOTAL_EST_METHOD	Method used to estimate total tree height
TREE_DEAD	HT_TOTAL_FT	Total height of the tree, in feet
TREE_DEAD	HT_TOTAL_M	Total height of the tree, in meters
TREE_DEAD	MORTALITY_YN	Code indicating the dead tree is a recent mortality and still standing
TREE_DEAD	PLOT	Original plot number
TREE_DEAD	PLOT_ID	Unique number assigned to each plot row in the entire PLOT table, [Key field]
TREE_DEAD	PLOT_SIZE	Size of the plot
TREE_DEAD	SNAG_WILDLIFE_USE	Wildlife use code
TREE_DEAD	SUBPLOT_ID	Unique row number in the SUBPLOT table
TREE_DEAD	SUBPLOT_NUM	Subplot number on the plot

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_DEAD	TPA	Trees per acre
TREE_DEAD	TPA_SUBPLOT	Trees per acre at the subplot level
TREE_DEAD	TPH	Trees per hectare
TREE_DEAD	TPH_SUBPLOT	Trees per hectare at the subplot level
TREE_DEAD	TREE_COUNT	The number of dead saplings counted on a fixed radius plot.
TREE_DEAD	TREE_DEAD_ID	Dead tree ID: Unique number assigned to each dead tree (row) in the TREE_DEAD table [Key field]
TREE_DEAD	TREE_HIST	Tree history
TREE_DEAD	TREE_SPECIES	FIA species code to identify the tree species
TREE_DEAD	TREE_SPECIES_GROUP	A text code to organize species into groups
TREE_DEAD	TREE_TAG_NUM	Tree tag number
TREE_DEAD	VOL_AC_FT3	Total stem volume per acre, cubic feet/acre
TREE_DEAD	VOL_HA_M3	Total stem volume per hectare, cubic meters/hectare
TREE_DEAD	VOL_TR_FT3	Gross total stem volume, cubic feet/tree
TREE_DEAD	VOL_TR_M3	Gross total stem volume, cubic meters/tree

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_LIVE	AGE_BH	Age of the tree at breast height
TREE_LIVE	AGE_TTL	Total age of the tree
TREE_LIVE	AHG_FT	Annual height growth, in feet
TREE_LIVE	AHG_M	Annual height growth, in meters
TREE_LIVE	ALLTREE_ID	A unique code which identifies every tree (live or dead) in the database
TREE_LIVE	ASDG_CM2	Annual squared diameter growth, in square centimeters
TREE_LIVE	ASDG_IN2	Annual squared diameter growth, in square inches
TREE_LIVE	BA_FT2	Tree basal area in square feet
TREE_LIVE	BA_FT2_AC	Tree basal area, square feet per acre
TREE_LIVE	BA_M2	Tree basal area in square meters
TREE_LIVE	BA_M2_HA	Tree basal area, square meters per hectare
TREE_LIVE	BIOM_AC_ABV_GRND_TON	Above ground woody biomass, tons per acre
TREE_LIVE	BIOM_AC_BARK_TON	Biomass of the bark, tons per acre
TREE_LIVE	BIOM_AC_BOLE_MERCH_TON	Biomass of the merchantable bole, tons per acre
TREE_LIVE	BIOM_AC_BOLE_TTL_TON	Biomass of the total tree bole, tons per acre
TREE_LIVE	BIOM_AC_BRANCH_TON	Biomass of the live woody branches, in tons per acre
TREE_LIVE	BIOM_TR_ABV_GRND_TON	Above ground woody biomass, in tons/tree
TREE_LIVE	BIOM_TR_BARK_TON	Biomass of the bark, in tons/tree
TREE_LIVE	BIOM_TR_BOLE_MERCH_TON	Biomass of the merchantable tree bole, in tons/tree
TREE_LIVE	BIOM_TR_BOLE_TTL_TON	Biomass of the total tree bole, in tons/tree
TREE_LIVE	BIOM_TR_BRANCH_TON	Biomass of the live woody branches, in tons/tree
TREE_LIVE	BIOM_WOOD_DENS	Density of wood for a species, in pounds/cubic foot.
TREE_LIVE	BIOM_WOOD_SPEC_GRAV	Specific gravity of wood for a given species
TREE_LIVE	BORED_YN	Indicates whether the tree was bored
TREE_LIVE	CNTY	County code
TREE_LIVE	COND_CLASS	Condition class code
TREE_LIVE	COND_ID	Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]
TREE_LIVE	CROWN_CLASS	Crown class code for the tree
TREE_LIVE	CROWN_EST_METHOD	Method used to estimate the crown width
TREE_LIVE	CROWN_RATIO	Compacted crown ratio of the tree
TREE_LIVE	CROWN_WIDTH	Width of the live crown
TREE_LIVE	CULL_BD_FT	Percent of boardfoot volume lost (culled) because of defect or rot
TREE_LIVE	CULL_CUBIC	Percent of cubic volume lost (culled) because of defect or rot
TREE_LIVE	DATA_SOURCE	Identifies the source of the inventory data
TREE_LIVE	DBH_1YR_AGO_CM	An estimate of dbh for the year prior to the current measurement, in centimeters
TREE_LIVE	DBH_1YR_AGO_IN	An estimate of dbh for the year prior to the current measurement, in inches
TREE_LIVE	DBH_CLASS	Diameter class for the tree
TREE_LIVE	DBH_CM	Diameter at breast height, cm
TREE_LIVE	DBH_EST_METHOD	The method used to obtain the tree diameter
TREE_LIVE	DBH_IN	Diameter at breast height, inches

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_LIVE	DBH_INC_10YR_CM	The diameter increment during the remeasurement period, in centimeters
TREE_LIVE	DBH_INC_10YR_IN	The diameter increment during the remeasurement period, in inches
TREE_LIVE	DBH_INC_EST_METHOD	The method used to estimate a diameter increment.
TREE_LIVE	DMG_AGENT_GROUP	Broad group of damaging agents
TREE_LIVE	DMG_AGENT_REGION5	Damage codes specific to Region 5.
TREE_LIVE	DMG_AGENT1_CODE	Agent, organism, or physical injury that severly impacts the growth of a tree
TREE_LIVE	DMG_AGENT1_SEVERITY	Severity of the damaging agent on the tree
TREE_LIVE	DMG_AGENT2_CODE	Agent, organism, or physical injury that severly impacts the growth of a tree
TREE_LIVE	DMG_AGENT2_SEVERITY	Severity of the damaging agent on the tree
TREE_LIVE	DMG_AGENT3_CODE	Agent, organism, or physical injury that severly impacts the growth of a tree
TREE_LIVE	DMG_AGENT3_SEVERITY	Severity of the damaging agent on the tree
TREE_LIVE	DWARF_MIST	Degree of dwarf or leafy mistletoe infection on the tree.
TREE_LIVE	FOREST_OR_BLM_DISTRICT	Administrative National Forest code
TREE_LIVE	GS_TREE_YN	Growing stock tree
TREE_LIVE	GS_VOL_TREE_YN	Growing stock volume tree for cubic volume summaries
TREE_LIVE	HT_1YR_AGO_FT	An estimate of height for the year prior to the current inventory, in feet
TREE_LIVE	HT_1YR_AGO_M	An estimate of height for the year prior to the current inventory, in meters
TREE_LIVE	HT_EST_METHOD	Method used to estimate tree height
TREE_LIVE	HT_FT	Total height of the tree, in feet
TREE_LIVE	HT_M	Total height of the tree, in meters
TREE_LIVE	HWD_FORM_CLASS	Hardwood form class
TREE_LIVE	MORT_RATE	Mortality rate
TREE_LIVE	PLOT	Original plot number
TREE_LIVE	PLOT_ID	The plot area in each stratum
TREE_LIVE	PLOT_SIZE	Size of the plot
TREE_LIVE	POLE_SIZE_YN	Poletimber sized tree
TREE_LIVE	PREV_DBH_CM	Diameter at breast height at the previous inventory, in centimeters
TREE_LIVE	PREV_DBH_EST_METHOD	Method used to estimate the previous diameter
TREE_LIVE	PREV_DBH_IN	Diameter at breast height at the previous inventory, in inches
TREE_LIVE	PREV_HT_EST_METHOD	Method used to estimate total tree height at the previous inventory
TREE_LIVE	PREV_HT_FT	Total height of the tree at the previous inventory, in feet
TREE_LIVE	PREV_HT_M	Total height of the tree at the previous inventory, in meters
TREE_LIVE	SAPLING_YN	Sapling sized tree
TREE_LIVE	SAWTIMBER_YN	Sawtimber sized tree
TREE_LIVE	SEEDLING_YN	Identifies seedlings
TREE_LIVE	STAND_POS	Stand position occupied by the tree
TREE_LIVE	STATE	State where the plot is located

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_LIVE	STK_EQN_RESULT	Stocking estimate for the tree, unaltered original result of the equation
TREE_LIVE	STK_TYPE1	Adjusted, proportioned stocking estimate for the tree Used to calculate forest type and stand size.
TREE_LIVE	STK_TYPE2	Adjusted, expanded stocking estimate for the tree Used to calculate stand age.
TREE_LIVE	STK_TYPE3	Unadjusted, proportioned stocking estimate for the tree An intermediate unexpanded stocking estimate.
TREE_LIVE	STK_TYPE4	Unadjusted, expanded stocking estimate for the tree An intermediate unproportioned stocking estimate.
TREE_LIVE	SUBPLOT_ID	Unique row number in the SUBPLOT table
TREE_LIVE	SUBPLOT_NUM	Subplot number on the plot
TREE_LIVE	TPA	Trees per acre
TREE_LIVE	TPA_SUBPLOT	Trees per acre at the subplot level
TREE_LIVE	TPH	Trees per hectare
TREE_LIVE	TPH_SUBPLOT	Trees per hectare at the subplot level
TREE_LIVE	TREE_CLASS	Tree class code to identify cull or noncull trees
TREE_LIVE	TREE_COUNT	The number of seedlings counted on a fixed radius plot, or the number of saplings when a group count is entered
TREE_LIVE	TREE_FLAG	A flag that indicates the original height was questionable and recalculated
TREE_LIVE	TREE_HIST	Tree history
TREE_LIVE	TREE_LIVE_ID	Live tree ID: Unique number assigned to each live tree (row) in the Live Tree table [Key field]
TREE_LIVE	TREE_SPECIES	FIA species code to identify the tree species
TREE_LIVE	TREE_SPECIES_GROUP	A text code to organize species into groups
TREE_LIVE	TREE_TAG_NUM	Tree tag number
TREE_LIVE	VOL_AC_ANN_MORT_FT3	Estimated annual mortality volume per acre, cubic-feet/acre
TREE_LIVE	VOL_AC_ANN_MORT_INTL_FT2	Estimated annual mortality volume per acre, International 1/4" rule, board feet/acre, ft2/acre
TREE_LIVE	VOL_AC_ANN_MORT_SCR_FT2	Estimated annual mortality volume per acre, Scribner rule, board feet/acre, ft2/acre
TREE_LIVE	VOL_AC_GRS_CA_GRW_FT3	Gross current annual volume growth/acre, cubic-feet/acre
TREE_LIVE	VOL_AC_GRS_CA_GRW_INTL_FT2	Gross current annual volume growth/acre, International 1/4" rule, board-feet/acre, ft2/acre
TREE_LIVE	VOL_AC_GRS_CA_GRW_SCR_FT2	Gross current annual volume growth/acre, Scribner rule, board-feet/acre, ft2/acre
TREE_LIVE	VOL_AC_GRS_CA_GRW_STEM_ TTL_FT3	Gross annual total stem growth volume/acre, cubic-feet/acre
TREE_LIVE	VOL_AC_GRS_FT3	Gross volume per acre, cubic-feet/acre
TREE_LIVE	VOL_AC_GRS_INTL_FT2	Gross volume per acre, International 1/4" rule, board feet/acre, ft2/ac
TREE_LIVE	VOL_AC_GRS_SCR_FT2	Gross volume per acre, Scribner rule, board feet/acre, ft2/ac
TREE_LIVE	VOL_AC_GRS_STEM_SAWLOG_FT3	Gross sawlog volume per acre, cubic-feet/acre
TREE_LIVE	VOL_AC_GRS_STEM_TTL_FT3	Gross total stem volume per acre, cubic feet/acre
TREE_LIVE	VOL_AC_GRS_STEM_UPR_FT3	Gross volume of the upper stem per acre, cubic feet/acre
TREE_LIVE	VOL_AC_NET_CA_GRW_FT3	Net current annual growth volume/acre, cubic feet/acre

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_LIVE	VOL_AC_NET_CA_GRW_INTL_FT2	Net current annual growth volume/acre, International 1/4" rule, board foot/acre, ft2/ac
TREE_LIVE	VOL_AC_NET_CA_GRW_SCR_FT2	Net current annual growth volume/acre, Scribner rule, board foot/acre, ft2/ac
TREE_LIVE	VOL_AC_NET_FT3	Net volume per acre, cubic feet/acre
TREE_LIVE	VOL_AC_NET_INTL_FT2	Net volume of the tree, International 1/4" rule, board feet/acre, ft2/ac
TREE_LIVE	VOL_AC_NET_SCR_FT2	Net volume per acre, Scribner rule, board feet/acre, ft2/ac
TREE_LIVE	VOL_AC_NET_STEM_SAWLOG_FT3	Net volume of the sawlog per acre, cubic feet/acre
TREE_LIVE	VOL_AC_NET_STEM_UPR_FT3	Net upper stem volume per acre, cubic feet/acre
TREE_LIVE	VOL_TR_GRS_CA_GRW_FT3	Gross current annual growth volume/tree, cubic-feet/tree
TREE_LIVE	VOL_TR_GRS_CA_GRW_INTL_FT2	Gross current annual growth volume/tree, International 1/4" rule, board-feet/tree
TREE_LIVE	VOL_TR_GRS_CA_GRW_SCR_FT2	Gross current annual growth volume/tree, Scribner rule, board-feet/tree
TREE_LIVE	VOL_TR_GRS_CA_GRW_STEM_ TTL_FT3	Gross current annual growth of the total stem/tree, cubic-feet/tree
TREE_LIVE	VOL_TR_GRS_FT3	Gross volume, cubic-feet/tree
TREE_LIVE	VOL_TR_GRS_INTL_FT2	Gross volume, International 1/4" rule, board-feet/tree, ft2/tree
TREE_LIVE	VOL_TR_GRS_SCR_FT2	Gross volume, Scribner rule, board-feet/tree
TREE_LIVE	VOL_TR_GRS_STEM_SAWLOG_FT3	Gross sawlog volume, cubic-feet/tree
TREE_LIVE	VOL_TR_GRS_STEM_TTL_FT3	Gross total stem volume, cubic feet/tree
TREE_LIVE	VOL_TR_GRS_STEM_UPR_FT3	Gross volume of the upper stem, cubic feet/tree
TREE_LIVE	VOL_TR_NET_FT3	Net volume, cubic feet/tree
TREE_LIVE	VOL_TR_NET_INTL_FT2	Net volume, International 1/4" rule, board-feet/tree
TREE_LIVE	VOL_TR_NET_SCR_FT2	Net volume, Scribner rule, board-feet/tree
TREE_LIVE	VOL_TR_NET_STEM_SAWLOG_FT3	Net sawlog volume of the tree, cubic feet/tree
TREE_LIVE	VOL_TR_NET_STEM_UPR_FT3	Net upper stem volume, cubic feet/tree

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_MORT	ALLTREE_ID	A unique code which identifies every tree (live or dead) in the database
TREE_MORT	BA_FT2	Tree basal area in square feet
TREE_MORT	BA_FT2_AC	Tree basal area per acre
TREE_MORT	BA_M2	Tree basal area in square meters
TREE_MORT	BA_M2_HA	Tree basal area, in square meters per hectare
TREE_MORT	BIOM_AC_BOLE_TTL_TON	Biomass of the total tree bole, tons per acre
TREE_MORT	BIOM_TR_BOLE_TTL_TON	Biomass of the total tree bole, ground to tip
TREE_MORT	BIOM_WOOD_DENS	Density of wood for a species, in pounds/cubic foot.
TREE_MORT	BIOM_WOOD_SPEC_GRAV	Specific gravity of wood for a given species
TREE_MORT	COND_ID	Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]
TREE_MORT	DATA_SOURCE	Identifies the source of the inventory data.
TREE_MORT	DBH_CLASS	Diameter class for the tree
TREE_MORT	DBH_CM	Diameter at breast height, in centimeters
TREE_MORT	DBH_EST_METHOD	The method used to obtain the tree diameter
TREE_MORT	DBH_IN	Diameter at breast height, in inches
TREE_MORT	DMG_AGENT_GROUP	Broad group of damaging agents
TREE_MORT	DMG_AGENT_REGION5	Damage codes specific to Region 5.
TREE_MORT	DMG_AGENT1_CODE	Agent, organism, or physical injury observed on the tree
TREE_MORT	DMG_AGENT1_SEVERITY	Severity of the damaging agent observed on the tree
TREE_MORT	DMG_AGENT2_CODE	Agent, organism, or physical injury observed on the tree
TREE_MORT	DMG_AGENT2_SEVERITY	Severity of the damaging agent observed on the tree
TREE_MORT	DMG_AGENT3_CODE	Agent, organism, or physical injury observed on the tree
TREE_MORT	DMG_AGENT3_SEVERITY	Severity of the damaging agent observed on the tree
TREE_MORT	HT_ACTUAL_FT	Actual tree height, in feet
TREE_MORT	HT_EST_METHOD	Method used to estimate a total height
TREE_MORT	HT_FT	Total tree height, in feet
TREE_MORT	HT_M	Total tree height, in meters
TREE_MORT	PLOT_SIZE	Size of the plot
TREE_MORT	SUBPLOT_ID	Unique row number assigned to each subplot record in the Subplot table. [Key Field]
TREE_MORT	SUBPLOT_NUM	Subplot number on the plot
TREE_MORT	TPA	Trees per acre
TREE_MORT	TPA_SUBPLOT	Trees per acre at the subplot level
TREE_MORT	TPH	Trees per hectare
TREE_MORT	TPH_SUBPLOT	Trees per hectare at the subplot level
TREE_MORT	TREE_COUNT	The number of dead saplings counted on a fixed radius plot.
TREE_MORT	TREE_FLAG	A flag that indicates the original height was questionable and recalculated
TREE_MORT	TREE_HIST	Tree history

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_MORT	TREE_MORT_ID	Mortality tree ID: Unique number assigned to each dead tree (row) in the Mortality Tree table [Key field]
TREE_MORT	TREE_SPECIES	FIA species code to identify the tree species
TREE_MORT	TREE_SPECIES_GROUP	A text code to organize species into groups
TREE_MORT	TREE_TAG_NUM	Tree tag number
TREE_MORT	VOL_AC_GRS_FT3	Gross volume of the tree/acre, cubic-feet/acre
TREE_MORT	VOL_AC_GRS_STEM_TTL_FT3	Gross total stem volume, cubic feet/acre
TREE_MORT	VOL_TR_GRS_FT3	Gross volume of the tree, cubic-feet,/tree
TREE_MORT	VOL_TR_GRS_STEM_TTL_FT3	Gross total stem volume, cubic feet/tree

PNW- FIA
INTEGRATED DATABASE
TABLE STRUCTURE

Tables -- Columns -- Descriptions

Table Name	Column Name	DESCRIPTION
TREE_SITE	AGE_BH	Breast height age of the tree
TREE_SITE	ALLTREE_ID	A unique code which identifies every tree (live or dead) in the database
TREE_SITE	COND_ID	Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]
TREE_SITE	DATA_SOURCE	Identifies the source of the inventory data.
TREE_SITE	DBH_CM	Diameter at breast height, cm
TREE_SITE	DBH_IN	Diameter at breast height, inches
TREE_SITE	HT_FT	Tree height in feet
TREE_SITE	HT_M	Tree height, in meters
TREE_SITE	PLOT	Original plot number
TREE_SITE	SITE_INDEX	Site Index for each site tree
TREE_SITE	SITE_INDEX_EQN	Number of the Site Index equation used on this tree.
TREE_SITE	SUBPLOT_ID	Unique row number assigned to each subplot record in the Subplot table. [Key Field]
TREE_SITE	SUBPLOT_NUM	Subplot number on the plot
TREE_SITE	TREE_SITE_ID	Site Tree ID: Unique number assigned to each row in the site tree table [Key field]
TREE_SITE	TREE_SPECIES	FIA species code to identify the tree species
TREE_SITE	TREE_TAG_NUM	Tree tag number

List of Valid Codes

For Columns that contain coded data

View the codes on-screen with the
IDB Form called:
IDB_DOCUMENTATION_CODE_AND_
COLUMN_DEFINITIONS

COLUMN NAME: **ASPECT_DEG**

Code values	Brief Definition
null	Not available or not measured
0	Flat
135	Southeast
180	South
225	Southwest
270	West
315	Northwest
360	North
45	Northeast
90	East

COLUMN NAME: **ASPECT_DIRECTION**

Code values	Brief Definition
East	E 67.6-112.5 degrees
Flat	Flat: 0 degrees
n.a.	Not available or not measured
North	N 337.6-22.5 degrees
Northeast	NE 22.6-67.5 degrees
Northwest	NW 292.6-337.5 degrees
South	S 157.6-202.5 degrees
Southeast	SE 112.6-157.5 degrees
Southwest	SW 202.6-247.5 degrees
West	W 247.6-292.5 degrees

COLUMN NAME: **BAILEY_CODE**

Code values	Brief Definition
-242A	Willamette Valley and Puget Trough Section
-261A	Central California Coast Section
-261B	Southern California Coast Section
-262A	Great Valley Section
-263A	Northern California Coast Section
-322A	Mojave Desert Section
-331A	Palouse Prairie Section
-341D	Mono Section
-342B	Northwestern Basin and Range Section
-342C	Owyhee Uplands Section
-342H	High Lava Plains Section
-342I	Columbia Basin Section
M242A	Oregon and Washington Coast Ranges Section
M242B	Western Cascades Section
M242C	Eastern Cascades Section
M261A	Klamath Mountains Section
M261B	Northern California Coast Ranges Section
M261C	Northern California Interior Coast Ranges Section
M261D	Southern Cascades Section
M261E	Sierra Nevada Section
M261F	Sierra Nevada Foothills Section
M261G	Modoc Plateau Section
M262A	Central California Coast Ranges Section
M262B	Southern California Mountains and Valleys Section
M332G	Blue Mountains Section
M333A	Okanogan Highlands Section

COLUMN NAME: **BAILEY_PROVINCE_CODE**

Code values	Brief Definition
01	American Semi-Desert and Desert Province
02	California Coastal Chapparral Forest and Shrub Province
03	California Coastal Range Open Woodland-Shrub-Coniferous Forest-Meadow Province
04	California Coastal Steppe, Mixed Forest, and Redwood Forest Province
05	California Dry Steppe Province
06	Cascade Mixed Forest-Coniferous Forest-Alpine Meadow Province
07	Great Plains-Palouse Dry Steppe Province
08	Intermountain Semi-Desert and Desert Province
09	Intermountain Semi-Desert Province
10	Middle Rocky Mountain Steppe-Coniferous Forest-Alpine Meadow Province
11	Northern Rocky Mountain Forest-Steppe-Coniferous Forest-Alpine Meadow Province
12	Pacific Lowland Mixed Forest Province
13	Sierran Steppe-Mixed Forest-Coniferous Forest-Alpine Meadow Province

COLUMN NAME: **BORED_YN**

Code values	Brief Definition
N	The tree was not bored.
Y	The tree was bored, an increment core was used to determine age

COLUMN NAME: **CNTY**

Code values	Brief Definition
see metadata table	County where plot is located

COLUMN NAME: **COND_CLASS**

Code values	Brief Definition
1	Condition class 1, plot center
2	2nd condition class
3	3nd condition class
4	4th condition class
5	5th condition class

COLUMN NAME: **CROWN_CLASS**

Code values	Brief Definition
null	n.a.
2	dominant
3	codominant
4	intermediate
5	overtopped

COLUMN NAME: **CROWN_EST_METHOD**

Code values	Brief Definition
1	measured in the field
2	estimated in the office with equations

COLUMN NAME: **CROWN_RATIO**

Code values	Brief Definition
null	not measured
1	01-10%
2	11-20%
3	21-30%
4	31-40%
5	41-50%
6	51-60%
7	61-70%
8	71-80%
9	81+%

COLUMN NAME: **CWD_sampled**

Code values	Brief Definition
1	CWD sampled on the condition
2	CWD not sampled on the plot by design
3	CWD not sampled on the condition because the transect did not extend into the condition on any subplot

COLUMN NAME: **DATA_SOURCE**

Code values	Brief Definition
BLMWO	Bureau of Land Management, western Oregon inventory
FIACA	Forest Inventory and Analysis, PNW, California inventory
FIAEO	Forest Inventory and Analysis, PNW, Eastern Oregon inventory
FIAEW	Forest Inventory and Analysis, PNW, Eastern Washingotn inventory
FIAWO	Forest Inventory and Analysis, PNW, Western Oregon inventory
FIAWW	Forest Inventory and Analysis, PNW, Western Washington inventory
R5	Region 5, California inventory
R6	Region 6, Oregon and Washington inventories
RMRS	Forest Inventory and Analysis, RMRS: Region 2, Kaniksu NF in Washington; and Region 4, Toiyabe NF in California

COLUMN NAME: **DATA_SOURCE_NAME**

Code values	Brief Definition
BLM, western Oregon inventory	Name of inventory program and periodic inventory
FIA, PNW, California inventory	Name of inventory program and periodic inventory
FIA, PNW, Eastern Oregon inventory	Name of inventory program and periodic inventory
FIA, PNW, Eastern Washingotn inventory	Name of inventory program and periodic inventory
FIA, PNW, Western Oregon inventory	Name of inventory program and periodic inventory
FIA, PNW, Western Washington inventory	Name of inventory program and periodic inventory
Region 4, Intermountain Region	Name of inventory program and periodic inventory
Region 5, Pacific Southwest Region	Name of inventory program and periodic inventory
Region 6, Pacific Northwest Region	Name of inventory program and periodic inventory

COLUMN NAME: **DBH_CLASS**

Code values	Brief Definition
01.0-2.9	Diameter class in inches
03.0-4.9	Diameter class in inches
05.0-6.9	Diameter class in inches
07.0-8.9	Diameter class in inches
09.0-10.9	Diameter class in inches
11.0-12.9	Diameter class in inches
13.0-14.9	Diameter class in inches
15.0-16.9	Diameter class in inches
17.0-18.9	Diameter class in inches
19.0-20.9	Diameter class in inches
21.0 - 22.9	Diameter class in inches
23.0 - 24.9	Diameter class in inches
25.0 - 26.9	Diameter class in inches
27.0 - 28.9	Diameter class in inches
29.0 - 30.9	Diameter class in inches
31.0 - 32.9	Diameter class in inches
33.0 - 34.9	Diameter class in inches
35.0 - 36.9	Diameter class in inches
37.0 - 38.9	Diameter class in inches
39.0 - 40.9	Diameter class in inches
41.0 - 42.9	Diameter class in inches
43.0 - 44.9	Diameter class in inches
45.0 - 46.9	Diameter class in inches
47.0 - 48.9	Diameter class in inches
48.9 plus	Diameter class in inches
n.a.	Not available or not measured
seedling	Diameter is less than 1" (2.54cm)

COLUMN NAME: **DBH_EST_METHOD**

Code values	Brief Definition
1	DBH field measured
2	DBH estimated from measured increment
3	DBH estimated from predicted increment or regression equation
4	DBH estimated in the field by crews

COLUMN NAME: **DBH_INC_EST_METHOD**

Code values	Brief Definition
null	Increment not collected on this tree
1	Increment field measured
2	Increment estimated from FVS equations (NFS,BLM only)
3	Increment estimated by averaging measured increments on other trees (NFS,BLM only)

COLUMN NAME: **DECAY**

Code values	Brief Definition
1	Decay Class 1
2	Decay Class 2
3	Decay Class 3

COLUMN NAME: **DECAY_orig**

Code values	Brief Definition
1	Decay Class 1
2	Decay Class 2
3	Decay Class 3
4	Decay Class 4
5	Decay Class 5
9	Not recorded on this tree

COLUMN NAME: **DECAY_SNAG**

Code values	Brief Definition
1	Decay Class 1
2	Decay Class 2
3	Decay Class 3
4	Decay Class 4
5	Decay Class 5
9	Not recorded on this tree

COLUMN NAME: **DMG_AGENT_GROUP**

Code values	Brief Definition
01	Bark beetles
10	Defoliators
20	Other insects
30	Mistletoe
40	Rusts, cankers, bole rot
50	Needle casts
60	Root diseases
70	Animal damage
80	Weather related damage
90	Physical damage
99	Unknown; or dead

COLUMN NAME: **DMG_AGENT_REGION5**

Code values	Brief Definition
00	No visible defect
01	E. tinctorium or P. pini conks in the upper one-third of the merchantable bole.
02	E. tinctorium or P. pini conks in the middle one-third of the merchantable bole.
03	E. tinctorium or P. pini conks in the lower one-third of the merchantable bole.
04	E. tinctorium or P. pini conks widely separated along the bole.
07	Old fire, lightning, logging scar or other basal trunk wounds.
08	Top broken or dead
09	Conks in upper 1/3 and fire scar.
10	Conks in upper 1/3 and dead or broken top.
11	Conks in middle 1/3 and fire scar.
12	Conks in middle 1/3 and dead or broken top.
13	Conks in lower 1/3 and fire scar.
14	Conks in lower 1/3 and dead or broken top.
15	Fire scar and dead or broken top.
16	Conks in upper 1/3 and fire scar and dead or broken top.
17	Conks in middle 1/3 and fire scar and dead or broken top.
18	Conks in lower 1/3 and fire scar and dead or broken top.
19	Multiple tops in upper third of tree.
21	Rotten butt scar
22	F. officinalis or P. sulphureous
23	Other type of conk, one present.
24	Other type of conk, two or more present.
25	Top broken, below the point on the bole that has a diameter of than 40 % of the DBH.
51	Incense cedar older than 140 years
91	Rotten Cull tree.
92	Rough Cull tree
95	Salvable logs present; mortality trees only
96	No Salvable logs present; mortality trees only

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
01	General/other bark beetles
02	Mountain pine beetle (All Pinus spp.)
03	Douglas-fir beetle (PSME)
04	Spruce beetle (Picea spp.)
05	Western pine beetle (PIPO)
06	Pine engraver (All Pinus spp.)
07	Fir engraver (Abies spp.)
08	Silver fir beetle (ABAM)
09	Red turpentine beetle (All Pinus spp.)

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Bark beetle condition 1
2	Bark beetle condition 2
3	Bark beetle condition 3
4	Bark beetle condition 4
5	Bark beetle condition 5

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
10	General/other defoliators
11	Western blackheaded budworm
12	Pine butterfly
13	Douglas fir tussock moth
14	Larch casebearer
15	Western spruce/Modoc budworm
16	Western hemlock looper
17	Sawflies
18	Needle and sheath miners
19	Gypsy moth

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Defoliator condition 1
2	Defoliator condition 2
3	Defoliator condition 3
4	Defoliator condition 4
5	Defoliator condition 5
6	Defoliator condition 6
7	Defoliator condition 7
8	Defoliator condition 8
9	Defoliator condition 9

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
20	General/other insects
21	Shoot moths
22	Weevils
23	Wood borers
24	Balsam woolly adelgid

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Other insect condition 1
2	Other insect condition 2

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
30	Dwarf mistletoe

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Dwarf mistletoe condition 1
2	Dwarf mistletoe condition 2
3	Dwarf mistletoe condition 3
4	Dwarf mistletoe condition 4
5	Dwarf mistletoe condition 5
6	Dwarf mistletoe condition 6

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
31	True mistletoe (hardwoods)

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	True mistletoe condition 1
2	True mistletoe condition 2

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
36	White pine blister rust

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	White pine blister rust condition 1
2	White pine blister rust condition 2
3	White pine blister rust condition 3

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
40	General/other stem-branch cankers
41	Western gall rust
42	Comandra blister rust
43	Stalactiform rust
44	Atropellis canker
45	Cytospora/Phomopsis

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Canker condition 1
2	Canker condition 2

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
46	General/other stem decays
47	Red ring rot
48	Rust red stringy rot
49	Brown cubical butt rot

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Stem decay condition 1
2	Stem decay condition 2
3	Stem decay condition 3
4	Stem decay condition 4

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
55	General/other foliar pathogens
56	Rhabdocline needle cast or Swiss needle cast for R6 and BLM; Rhabdocline needle case for all FIA data
57	Elytroderma needle cast
58	Broom rusts (Only Abies, Picea)
59	Swiss needle cast (FIAWO & FIAEO)

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Foliar disease condition 1
2	Foliar disease condition 2

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
60	General/other root diseases
61	Annosus root disease
62	Armillaria root disease
63	Black stain root disease
65	Laminated root rot
66	Port-Orford-cedar root disease

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Root Disease condition 1
2	Root Disease condition 2
3	Root Disease condition 3

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
70	Animal-General/ unknown
71	Mountain beaver
72	Livestock
73	Deer or elk
74	Porcupines
75	Pocket gophers, squirrels, mice, voles, rabbits,hares
76	Beaver
77	Bear
78	Human (not logging)

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Animal condition 1
2	Animal condition 1

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
80	Weather-General/Unknown
81	Windthrow or wind breakage
82	Snow/ice bending or breakage
83	Frost damage on shoots
84	Winter desiccation
85	Drought/heat moisture deficiency
86	Sun scald
87	Lightning strike
90	Other/unknown

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Weather condition 1
2	Weather condition 2

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
91	Logging
92	Fire: basal scars or heat
93	Improper planting technique
94	Air pollution or other chemicals

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
1	Other injury condition 1
2	Other injury condition 2

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
95	Unspecified physical damage
96	FIA: Broken/Missing top/ dead top; R6 and BLM: Broken/Missing top

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
0	Broken/missing top condition 0 (R6 and BLMWO); Severity not rated for FIA
1	Broken/missing top condition 1
2	Broken/missing top condition 2
3	Broken/missing top condition 3
4	Broken/missing top condition 4
5	Broken/missing top condition 5
6	Broken/missing top condition 6
7	Broken/missing top condition 7
8	Broken/missing top condition 8
9	Broken/missing top condition 9

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
97	FIA: Forked top; R6 and BLMWO: Dead top

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
0	Dead top condition 0 (r6 and BLM); Severity not rated for FIA
1	Dead top condition 1
2	Dead top condition 2
3	Dead top condition 3
4	Dead top condition 4
5	Dead top condition 5
6	Dead top condition 6
7	Dead top condition 7
8	Dead top condition 8
9	Dead top condition 9

COLUMN NAME: **DMG_AGENT1_CODE**

Code values	Brief Definition
98	Crooks/Sweep
99	Checks and bole cracks

COLUMN NAME: **DMG_AGENT1_SEVERITY**

Code values	Brief Definition
0	Severity not rated

COLUMN NAME: **DWARF_MIST**

Code values	Brief Definition
0	none
1	Trace
2	Light
3	Medium
4	Moderately heavy
5	Heavy
6	Severe
7	Leafy mistletoe is present; oaks, incense cedar, and juniper

COLUMN NAME: **FOR_TYPE**

Code values	Brief Definition
see metadata table	Forest type code (same codes as tree species)

COLUMN NAME: **FOR_TYPE_GRP**

Code values	Brief Definition
CHAP	Chaparral
HW	Hardwood type
NS	Nonstocked
SW	Softwood type
UNK	Unknown

COLUMN NAME: **FOR_TYPE_SECDRY**

Code values	Brief Definition
see metadata table	Forest type code (same codes as tree species)

COLUMN NAME: **FOREST_DISTRICT**

Code values	Brief Definition

Forest_code	District_code	District_name
601	1	Bend
601	2	Cresent
601	3	Fort Rock
601	5	Sisters
602	1	Bly
602	2	Lakeview
602	3	Paisley
602	4	Silver Lake
603	1	Mount St Helens NVM
603	3	Mt Adams
603	4	Packwood (Cowlitz Valley)
603	5	Randle(Cowlitz Valley)
603	8	WindRiver (Cowlitz Valley)
604	1	Bear Valley
604	2	Burns
604	3	Long Creek
604	4	Prairie City
605	1	Mt Baker
605	2	Darrington
605	5	North Bend
605	6	Skykomish
605	7	White River
606	1	Barlow
606	2	Bear Springs
606	3	Clackamas
606	4	Columbia Gorge
606	5	Estacada
606	6	Hood River
606	9	Zigzag
607	1	Big Summit
607	2	Paulina
607	3	Prineville
607	4	Snow Mountain
607	5	Crooked River NG
608	3	Tonasket
608	4	Twisp
608	5	Winthrop
609	1	Hoodsport
609	2	Quilcene
609	3	Quinault
609	5	Soleduck
610	1	Applegate
610	2	Ashland
610	3	Butte Falls
610	6	Prospect

Forest_code	District_code	District_name
611	1	Chetco
611	2	Galice
611	3	Gold Beach
611	4	Illinois Valley
611	5	Powers
612	1	Hebo
612	2	Mapleton
612	3	Alsea
612	4	Oregon Dunes NRA
612	5	Waldport
614	2	Heppner
614	4	Pomeroy
614	5	N. Fork John Day
614	6	Walla Walla
615	1	Cottage Grove
615	2	Tiller
615	3	Diamond Lake
615	6	North Umpqua
616	1	Baker
616	2	Wallowa Valley
616	4	Hells Canyon NRA
616	5	Eagle Cap
616	6	La Grande
616	7	Pine
616	9	Unity
617	2	Chelan
617	3	Cle Elum
617	5	Entiat
617	6	Lake Wenatchee
617	7	Leavenworth
617	8	Naches
618	1	Blue River
618	3	Sweet Home
618	4	Detroit
618	5	Rigdon
618	6	Lowell
618	7	McKenzie
618	8	Oakridge
620	1	Chemult
620	2	Chiloquin
620	3	Klamath
621	1	Colville
621	2	Kettle Falls
621	3	Newport
621	4	Republic
621	5	Sullivan Lake

COLUMN NAME: **FOREST_OR_BLM_DISTRICT**

Code values	Brief Definition
113	Kaniksu
417	Toiyabe
501	Angeles
502	Cleveland
503	Eldorado
504	Inyo
505	Klamath
506	Lassen
507	Los Padres
508	Mendocino
509	Modoc
510	Six Rivers
511	Plumas
512	San Bernadino
513	Sequoia
514	Shasta-Trinity
515	Sierra
516	Stanislaus
517	Tahoe
519	Lake Tahoe Basin Mgt Unit
601	Deschutes
602	Fremont
603	Gifford Pinchot
604	Malheur
605	Mt.Baker Snoqualmie
606	Mt. Hood
607	Ochoco
608	Okanogan
609	Olympic
610	Rogue River
611	Siskiyou
612	Siuslaw
614	Umatilla
615	Umpqua
616	Wallowa Whitman
617	Wenatchee
618	Willamette
620	Winema
621	Colville
701	Coos Bay
702	Eugene
703	Klamath Falls
704	Medford
705	Roseberg
706	Salem

COLUMN NAME: **FOREST_PROCLAIMED**

Code values	Brief Definition
113	Kaniksu
417	Toiyabe
501	Angeles
502	Cleveland
503	Eldorado
504	Inyo
505	Klamath
506	Lassen
507	Los Padres
508	Mendocino
509	Modoc
510	Six Rivers
511	Plumas
512	San Bernadino
513	Sequoia
514	Shasta-Trinity
515	Sierra
516	Stanislaus
517	Tahoe
519	Lake Tahoe Basin Mgt Unit
601	Deschutes
602	Fremont
603	Gifford Pinchot
604	Malheur
605	Mt.Baker Snoqualmie
606	Mt. Hood
607	Ochoco
608	Okanogan
609	Olympic
610	Rogue River
611	Siskiyou
612	Siuslaw
614	Umatilla
615	Umpqua
616	Wallowa Whitman
617	Wenatchee
618	Willamette
620	Winema
621	Colville
701	Coos Bay
702	Eugene
703	Klamath Falls
704	Medford
705	Roseberg
706	Salem

COLUMN NAME: **FVS_FOREST**

Code values	Brief Definition
113	Kaniksu
417	Toiyabe
501	Angeles
502	Cleveland
503	Eldorado
504	Inyo
505	Klamath
506	Lassen
507	Los Padres
508	Mendocino
509	Modoc
510	Six Rivers
511	Plumas
512	San Bernadino
513	Sequoia
514	Shasta-Trinity
515	Sierra
516	Stanislaus
517	Tahoe
519	Lake Tahoe Basin Mgt Unit
601	Deschutes
602	Fremont
603	Gifford Pinchot
604	Malheur
605	Mt.Baker Snoqualmie
606	Mt. Hood
607	Ochoco
608	Okanogan
609	Olympic
610	Rogue River
611	Siskiyou
612	Siuslaw
614	Umatilla
615	Umpqua
616	Wallowa Whitman
617	Wenatchee
618	Willamette
620	Winema
621	Colville
701	Coos Bay
702	Eugene
703	Klamath Falls
704	Medford
705	Roseberg
706	Salem

COLUMN NAME: **FVS_VARIANT**

Code values	Brief Definition
AK	Southeast Alaska/Coastal British Columbia
BM	Blue Mountain Eastern Oregon
CA	Inland Northern California / Southern Cascades
EC	East Cascade Oregon / Washington
NC	Klamath Mountains Northeast California / Southwest Oregon
NI	Northern Idaho
PN	Pacific Northwest Coast Oregon / Washington
SO	South Central Oregon / Northeast California
WC	Westside Cascades Oregon / Washington
WS	Western Sierra Nevada

COLUMN NAME: **GLC**

Code values	Brief Definition
0	not in inventory
20	timberland
30	forest land, type of forest unknown
40	other forest, general
41	other forest, rocky
42	other forest, subalpine or coastal scrub
43	other forest, pinyon-junper
44	other forest, oak woodland
45	other forest, chaparral
46	other forest, unsuitable
47	other forest, wetland
48	other forest, cypress
49	other forest, low productivity
50	other forest, curleaf mountain mahogany
60	Nonforest, unknown type
61	Nonforest; cropland
62	Nonforest; improved pasture
63	Nonforest; natural rangeland, marsh, pasture, or abandoned farmland
64	Nonforest; Other types of farmland, such as crops and orchards
65	Nonforest;marsh
66	Nonforest; constructed roads, powerlines, pipelines, railroads
67	Nonforest; Urban land areas
68	Nonforest; Naturally nonvegetated land
69	Nonforest; Christmas tree lands, nurseries
92	Nonforest; water
98	Census water

COLUMN NAME: **GLC_GROUP**

Code values	Brief Definition
CHAP	Chaparral land
CW	Census Water
F	Forest land
NF	Non forest land
NS	Not in sample area

COLUMN NAME: **GS_TREE_YN**

Code values	Brief Definition
N	Not a growing stock tree; the tree is culled
Y	A growing stock tree; a live, noncull tree of any size

COLUMN NAME: **GS_VOL_TREE_YN**

Code values	Brief Definition
N	A growing stock tree < 5" (12.5cm) d.b.h.
Y	A growing stock tree >= 5" (12.5cm) d.b.h

COLUMN NAME: **HALF_STATE**

Code values	Brief Definition
CA	California
EOR	Eastern Oregon
EWA	Eastern Washington
WOR	Western Oregon
WWA	Western Washington

COLUMN NAME: **HT_ACTUAL_EST_METHOD**

Code values	Brief Definition
1	Actual Height was field measured
2	Actual Height was estimated from FVS equations (NFS, BLMWO only)

COLUMN NAME: **HT_EST_METHOD**

Code values	Brief Definition
1	Total Height was field measured
2	Total Height estimated from FVS equations (NFS and BLMWO only)
3	Total Height estimated in the field (FIA only)
4	Total Height estimated from FIA equation using previous height
5	Total Height estimated using regression equations
6	Total Height estimated using site index-based height growth equations
9	Total Height estimated on dead trees using average heights derived from live trees on the plot, by spp and diameter class.

COLUMN NAME: **HT_TOTAL_EST_METHOD**

Code values	Brief Definition
1	Total Height was field measured
2	Total Height was estimated from FVS equations (NFS, BLMWO only)
3	Total Height was field estimated at the previous occasion and applied to current inventory (FIA only)
4	Total Height was estimated from FIA equations at the previous occasion and applied to current inventory (FIA only)

COLUMN NAME: **HWD_FORM_CLASS**

Code values	Brief Definition
null	n.a.
1	one merch log present
2	no merch logs present

COLUMN NAME: **LIVE_TREES_PRESENT_YN**

Code values	Brief Definition
N	NO Live trees were tallied on this condition
Y	Live trees were present and tallied on this condition

COLUMN NAME: **Live_trees_sampled_YN**

Code values	Brief Definition
N	The plot or condition was NOT sampled for live trees by design
Y	The plot or condition was sampled for live trees

COLUMN NAME: **Mortality_sampled_YN**

Code values	Brief Definition
N	The plot or condition was NOT sampled for mortality by design
Y	The plot or condition was sampled for mortality

COLUMN NAME: **OCCASION_NUM**

Code values	Brief Definition
1	Occasion # 1
2	Occasion # 2
3	Occasion # 3
4	Occasion # 4

COLUMN NAME: **OMERNIK_CODE**

Code values	Brief Definition
01	Coast Range
02	Puget Lowland
03	Willamette Valley
04	Cascades
05	Sierra Nevada
06	Southern and Central California Chaparral and Oak Woodlands
07	Central California Valley
08	Southern California Mountains
09	Eastern Cascades Slopes and Foothills
10	Columbia Plateau
11	Blue Mountains
12	Snake River Basin
13	Central Basin and Range
14	Mojave Basin and Range
15	Northern Rockies
77	North Cascades
78	Klamath Mountains
80	Northern Basin and Range
81	Sonoran Basin and Range

COLUMN NAME: **OWN_GROUP**

Code values	Brief Definition
1	National Forests
2	Other Federal
3	State, county, local government
4	Private

COLUMN NAME: **OWNER**

Code values	Brief Definition
11	National Forests
21	National Park Service
22	Bureau of Land Management
23	Fish and Wildlife Service
24	Department of Defense or Energy
25	Other federal owner
31	State
32	Local Government (county, municipal)
33	Other non-federal public
46	Private

COLUMN NAME: **PLANT_ASSOC_CODE**

Code values	Brief Definition
see metadata table	Plant association code

COLUMN NAME: **PLOT_SIZE**

Code values	Brief Definition
01	2.5 acre (1 hectare) plot, eastside
02	2.5 acre (1 hectare) plot, westside
03	1/4 acre
04	1/5 acre or 1/5.3 acre, eastside
05	1/5 acre or 1.53 acre, westside
06	1/20 acre
07	1/8 acre
08	1/100 acre
10	variable plot, BAF 7 metric (FIACA, FIAWW, FIAWO)
11	variable plot, BAF 20 english (FIAEO, R5)
12	variable plot, BAF 30 english (FIAEO)
13	variable plot, BAF 40 english (FIAEW, R5)
14	2.35 meter fixed plot (FIAWO)
15	2.96 meter fixed plot (FIAEO), 20 BAF
16	2.41 meter fixed plot (FIAEO), 30 BAF
17	3.3meter fixed plot (FIACA, FIAWW)
18	2.1 meter fixed plot (FIAEW)
20	3.3 meter fixed plot, NE Quadrant only (FIAWW)
21	1/10 acre
22	1/24 acre

COLUMN NAME: **POLE_SIZE_YN**

Code values	Brief Definition
N	Not a poletimber sized tree
Y	poletimber sized tree (softwoods: between 5" and 9" dbh; hardwoods between 5" and 11" dbh.)

COLUMN NAME: **PREV_DBH_EST_METHOD**

Code values	Brief Definition
1	DBH field measured
2	DBH estimated from measured increment
3	DBH estimated from predicted increment or regression equation
4	DBH estimated in the field by crews

COLUMN NAME: **PREV_HT_EST_METHOD**

Code values	Brief Definition
1	Total Height was field measured
2	Total Height estimated from FVS equations (NFS and BLMWO only)
3	Total Height estimated in the field (FIA only)
4	Total Height estimated from FIA equation using previous height
5	Total Height estimated using regression equations
6	Total Height estimated using site index-based height growth equations
9	Total Height estimated on dead trees using average heights derived from live trees on the plot, by spp and diameter class.

COLUMN NAME: **PROXY_YN**

Code values	Brief Definition
n	No, the plot is not a proxy plot
y	Yes, the plot is a proxy plot

COLUMN NAME: **RESERVED_TYPE**

Code values	Brief Definition
1	Unreserved (available) land
2	Reserved land inside wilderness areas (r6)
3	Reserved land outside wilderness areas (r6)
4	Reserved land, no distinction regarding wilderness
5	Pending reserved, withdrawn,FIA considers this unreserved

COLUMN NAME: **RESERVED_YN**

Code values	Brief Definition
N	Plot is not in a reserved status
Y	Plot is in a reserved status

COLUMN NAME: **SAMP_TYPE**

Code values	Brief Definition
0	Out of inventory, not sampled
1	Measured forestland, trees sampled
2	Access denied forestland, previously measured trees WERE projected forward; cwd and snags not sampled; plot remains in the inventory
3	Unmeasured forestland, no trees sampled
4	Chaparral land
5	Nonforest land
6	Access denied forestland, trees were NOT projected forward
7	Proxy Plot

COLUMN NAME: **SAPLING_YN**

Code values	Brief Definition
N	Not a Sapling sized tree
Y	Sapling sized tree (>= 1" (2.5cm) dbh and < 5" (12.5cm) dbh)

COLUMN NAME: **SAWTIMBER_YN**

Code values	Brief Definition
N	Not a sawtimber sized tree
Y	A sawtimber sized tree (>= 9" dbh for softwoods or 11" dbh for hardwoods)

COLUMN NAME: **SEEDLING_YN**

Code values	Brief Definition
N	Not a Seedling sized tree
Y	Seedling sized tree (<1" dbh)

COLUMN NAME: **SITE_CLASS_DUNNINGS**

Code values	Brief Definition
0	Dunnings site class 0
1	Dunnings site class 1
2	Dunnings site class 2
3	Dunnings site class 3
4	Dunnings site class 4
5	Dunnings site class 5
6	Nonproductive, hardwood types
7	Nonproductive, shrub types or nonforest

COLUMN NAME: **SITE_CLASS_FIA**

Code values	Brief Definition
null	not calculated
1	225+ ft3/ac
2	165 to 224 ft3/ac
3	120 to 164 ft3/ac
4	85 to 119 ft3/ac
5	50 to 84 ft3/ac
6	20 to 49 ft3/ac
7	< 20 ft3/ac

COLUMN NAME: **SITE_INDEX_EQN**

Code values	Brief Definition
see metadata table	Equation number for the site index equation

COLUMN NAME: **SITE_INDEX_METHOD**

Code values	Brief Definition
1	Site index calculated from measured site trees
2	Site index assigned using a plant association crosswalk
3	Site index assigned using an average SI from plots in same plant association with SI trees
4	Site index assigned using an average SI from plots in same plant association

COLUMN NAME: **SLIVER_YN**

Code values	Brief Definition
N	The condition class is not a sliver
Y	The condition class is a sliver

COLUMN NAME: **SLOPE**

Code values	Brief Definition
0	Flat, no slope
05	Percent slope <= 5%
10	Percent slope = 6-15%
20	Percent slope = 16-25%
30	Percent slope = 26-35%
40	Percent slope = 36-45%
50	Percent slope = 46-55%
60	Percent slope = 56-65%
70	Percent slope = 66-75%
80	Percent slope = 76-85%
90	Percent slope >= 86%

COLUMN NAME: **SNAG_WILDLIFE_USE**

Code values	Brief Definition
1	Excavations, cavities, or dens present
2	Excavations, cavities, or dens are NOT present
9	This data was not recorded in the field

COLUMN NAME: **Snags_sampled_YN**

Code values	Brief Definition
N	The plot or condition was NOT sampled for snags by design
Y	The plot or condition was sampled for snags

COLUMN NAME: **STAND_AGE**

Code values	Brief Definition
01	000-009 years
02	010-019 years
03	020-029 years
04	030-039 years
05	040-049 years
06	050-059 years
07	060-069 years
08	070-079 years
09	080-089 years
10	090-099 years
11	100-109 years
12	110-119 years
13	120-129 years
14	130-139 years
15	140-149 years
16	150-159 years
17	160-169 years
18	170-179 years
19	180-189 years
20	190-199 years
21	200-299 years
22	300+ years
99	Nonstocked
999	Unknown Stand age; No trees bored for age on the plot; or access denied

COLUMN NAME: **STAND_AGE_EVEN_YN**

Code values	Brief Definition
null	Not determined on this condition; NFS or BLMWO plot
N	Uneven aged stand.
Y	Even aged stand.

COLUMN NAME: **STAND_POS**

Code values	Brief Definition
0	unclassified tree
1	mainstand
3	futurestand
5	residual overstory

COLUMN NAME: **STAND_SIZE_CLASS**

Code values	Brief Definition
1	seedling sapling stand
2	poletimber stand
3	small sawtimber stand
4	large sawtimber stand
6	nonstocked stand
7	Unclassified stand; plot was access denied or unsampled

COLUMN NAME: **STATE**

Code values	Brief Definition
16	ID
32	NV
41	OR
53	WA
6	CA

COLUMN NAME: **SUBPLOT_NUM**

Code values	Brief Definition
01	First subplot (point) on the plot.
02	2nd subplot (point)
03	3rd subplot (point)
04	4th subplot (point)
05	5th subplot (point)

COLUMN NAME: **SURVEY_UNIT_FIA**

Code values	Brief Definition
0	Oregon: Northwest
1	California: North Coast
1	Oregon: West central
2	Oregon: Southwest
2	California: North Interior
3	California: Sacramento
3	Oregon: East Central
4	California: Central Coast
4	Oregon: Blue Mountains
5	Washington: Puget Sound
5	California: San Joaquin
6	California: Southern
6	Washington: Olympic Peninsula
7	Washington: Southwest
8	Washington: West Central
9	Washington: Eastern

COLUMN NAME: **TRANSECT_ID**

Code values	Brief Definition
135	135 degrees: CWD transect installed following an azimuth of 135
225	225 degrees: CWD transect installed following an azimuth of 225
360	360 degrees: CWD transect installed following an azimuth of 360
E	East: CWD transect installed following a east azimuth
N	North: CWD transect installed following a north azimuth
S	South: CWD transect installed following a south azimuth
W	West: CWD transect installed following a west azimuth

COLUMN NAME: **TREE_CLASS**

Code values	Brief Definition
0	dead
1	rough, sound cull
2	rotten cull
3	live, non cull tree

COLUMN NAME: **TREE_FLAG**

Code values	Brief Definition
1	Unreasonable Height: Height is less than half of the FVS height calculated for the same DBH
2	Unreasonable Height or DBH: Height to DBH ratio is less than 1.5
3	Unreasonable Height: Height is more than twice the FVS height calculated for the same DBH
5	Unreasonable Height: Height appears to be too small
6	Height was missing
9	Need different volume equation, the dbh/height not appropriate

COLUMN NAME: **TREE_HIST**

Code values	Brief Definition
1	Live tree that has been remeasured
2	Live tree that is new to the inventory
4	Live tree which is ingrowth (FIA only)
5	Dead tree, mortality
57	Dead tree, mortality and also classified as a wildlife snag in FIA inventories
6	Live tree which was missed in the previous inventory (FIA only)
7	Dead tree, snag

COLUMN NAME: **TREE_SPECIES**

Code values	Brief Definition
see metadata table	Tree species

COLUMN NAME: **TREE_SPECIES_GROUP**

Code values	Brief Definition
HW	Hardwood trees or logs, with a numeric tree species between 300 - 998.
NT	For down wood: No Tally indicator, with a tree species of 0, which is essentially a placeholder for a no-tally line. If no tally was recorded, each subplot/transectID/condition must have a 'zero line' entered as evidence that the transect was installed.
SW	Softwood trees or logs, with a numeric tree species between 1 - 299.
UNK	Unknown species, with a numeric tree species of 999

COLUMN NAME: **TREES_LIVE_YN**

Code values	Brief Definition
N	NO Live trees were tallied on this condition
Y	Live trees were present and tallied on this condition

COLUMN NAME: **TREES_MORT_YN**

Code values	Brief Definition
N	NO Mortality trees were tallied on this condition
Y	Mortality trees were present and tallied on this condition

COLUMN NAME: **USAGE**

Code values	Brief Definition
0	Excavations are not present (R6 and BLMWO)
1	Excavations 1 to 5.9 inches are present (R6 and BLMWO)
2	Excavations >= 6 inches are present (BLMWO only)
3	Log is solid or has a cavity that is less than .5 meters. (FIA)
4	Log is hollow for at least .5 meters. (FIA)

County Code List

I D B County Codes

PNW - FIA

State	County Code	County Name	Survey Unit
California	1	Alameda	Central Coast
California	3	Alpine	San Joaquin
California	5	Amador	San Joaquin
California	7	Butte	Sacramento
California	9	Calaveras	San Joaquin
California	11	Colusa	Sacramento
California	13	Contra Costa	Central Coast
California	15	Del Norte	North Coast
California	17	El Dorado	Sacramento
California	19	Fresno	San Joaquin
California	21	Glenn	Sacramento
California	23	Humboldt	North Coast
California	25	Imperial	Southern
California	27	Inyo	Southern
California	29	Kern	San Joaquin
California	31	Kings	San Joaquin
California	33	Lake	Sacramento
California	35	Lassen	North Interior
California	37	Los Angeles	Southern
California	39	Madera	San Joaquin
California	41	Marin	Central Coast
California	43	Mariposa	San Joaquin
California	45	Mendocino	North Coast
California	47	Merced	San Joaquin
California	49	Modoc	North Interior
California	51	Mono	San Joaquin
California	53	Monterey	Central Coast
California	55	Napa	Sacramento
California	57	Nevada	Sacramento
California	59	Orange	Southern
California	61	Placer	Sacramento

I D B County Codes

PNW - FIA

State	County Code	County Name	Survey Unit
California	63	Plumas	Sacramento
California	65	Riverside	Southern
California	67	Sacramento	Sacramento
California	69	San Benito	Central Coast
California	71	San Bernardino	Southern
California	73	San Diego	Southern
California	75	San Francisco	Central Coast
California	77	San Joaquin	San Joaquin
California	79	San Luis Obispo	Central Coast
California	81	San Mateo	Central Coast
California	83	Santa Barbara	Central Coast
California	85	Santa Clara	Central Coast
California	87	Santa Cruz	Central Coast
California	89	Shasta	North Interior
California	91	Sierra	Sacramento
California	93	Siskiyou	North Interior
California	95	Solano	Central Coast
California	97	Sonoma	North Coast
California	99	Stanislaus	San Joaquin
California	101	Sutter	Sacramento
California	103	Tehama	Sacramento
California	105	Trinity	North Interior
California	107	Tulare	San Joaquin
California	109	Tuolumne	San Joaquin
California	111	Ventura	Central Coast
California	113	Yolo	Sacramento
California	115	Yuba	Sacramento

I D B County Codes

PNW - FIA

State	County Code	County Name	Survey Unit
Oregon	1	Baker	Blue Mountains
Oregon	3	Benton	West central
Oregon	5	Clackamas	Northwest
Oregon	7	Clatsop	Northwest
Oregon	9	Columbia	Northwest
Oregon	11	Coos	Southwest
Oregon	13	Crook	Central
Oregon	15	Curry	Southwest
Oregon	17	Deschutes	Central
Oregon	19	Douglas	Southwest
Oregon	21	Gilliam	Central
Oregon	23	Grant	Blue Mountains
Oregon	25	Harney	Blue Mountains
Oregon	27	Hood River	Northwest
Oregon	29	Jackson	Southwest
Oregon	31	Jefferson	Central
Oregon	33	Josephine	Southwest
Oregon	35	Klamath	Central
Oregon	37	Lake	Central
Oregon	39	Lane	West central
Oregon	41	Lincoln	West central
Oregon	43	Linn	West central
Oregon	45	Malheur	Blue Mountains
Oregon	47	Marion	Northwest
Oregon	49	Morrow	Blue Mountains
Oregon	51	Multnomah	Northwest
Oregon	53	Polk	Northwest
Oregon	55	Sherman	Central
Oregon	57	Tillamook	Northwest
Oregon	59	Umatilla	Blue Mountains
Oregon	61	Union	Blue Mountains

State	County Code	County Name	Survey Unit
Oregon	63	Wallowa	Blue Mountains
Oregon	65	Wasco	Central
Oregon	67	Washington	Northwest
Oregon	69	Wheeler	Central
Oregon	71	Yamhill	Northwest

PNW - FIA I D B County Codes PNW - FIA

State	County Code	County Name	Survey Unit
Washington	1	Adams	Eastern
Washington	3	Asotin	Eastern
Washington	5	Benton	Eastern
Washington	7	Chelan	Central washington
Washington	9	Clallam	Olympic Penninsula
Washington	11	Clark	Southwest Washington
Washington	13	Columbia	Eastern
Washington	15	Cowlitz	Southwest Washington
Washington	17	Douglas	Central washington
Washington	19	Ferry	Eastern
Washington	21	Franklin	Eastern
Washington	23	Garfield	Eastern
Washington	25	Grant	Eastern
Washington	27	Grays Harbor	Olympic Penninsula
Washington	29	Island	Puget Sound
Washington	31	Jefferson	Olympic Penninsula
Washington	33	King	Puget Sound
Washington	35	Kitsap	Puget Sound
Washington	37	Kittitas	Central washington
Washington	39	Klickitat	Central washington
Washington	41	Lewis	Southwest Washington
Washington	43	Lincoln	Eastern
Washington	45	Mason	Olympic Penninsula
Washington	47	Okanagon	Central washington
Washington	49	Pacific	Southwest Washington
Washington	51	Pend Oreille	Eastern
Washington	53	Pierce	Puget Sound
Washington	55	San Juan	Puget Sound
Washington	57	Skagit	Puget Sound
Washington	59	Skamania	Southwest Washington
Washington	61	Snohomish	Puget Sound

State	County Code	County Name	Survey Unit
Washington	63	Spokane	Eastern
Washington	65	Stevens	Eastern
Washington	67	Thurston	Olympic Penninsula
Washington	69	Wahkiakum	Southwest Washington
Washington	71	Walla Walla	Eastern
Washington	73	Whatcom	Puget Sound
Washington	75	Whitman	Eastern
Washington	77	Yakima	Central washington

Tree Species Code List

I D B Tree Species

PNW - FIA

Tree Species	Common Name	Scientific Name
0	No Species Tallied	
11	Pacific silver fir	Abies amabilis
14	Santa Lucia fir	Abies bracteata
15	White fir	Abies concolor
17	Grand fir	Abies grandis
18	Corkbark fir	Abies lasiocarpa var. arizonica
19	Subalpine fir	Abies lasiocarpa
20	California red fir	Abies magnifica
21	Shasta red fir	Abies magnifica var. shastensis
22	Noble fir	Abies procera
41	Port-Orford-cedar	Chamaecyparis lawsoniana
42	Alaska-cedar	Chamaecyparis nootkatensis
50	Cypress	Cupressus sp.
51	Arizona cypress	Cupressus arizonica
56	McNab cypress	
58	Pinchot juniper	Juniperus pinchotti
59	Redberry juniper	Juniperus erythrocarpa
62	California juniper	Juniperus californica
63	Alligator juniper	Juniperus deppeana
64	Western juniper	Juniperus occidentalis
65	Utah juniper	Juniperus osteosperma
66	Rocky Mountain juniper	Juniperus scopulorum
69	Oneseed juniper	Juniperus monosperma
72	Subablpine larch	Larix lyallii
73	Western larch	Larix occidentalis
81	Incense cedar	Calocedrus decurrens
92	Brewer spruce	Picea breweriana
93	Engelmann spruce	Picea engelmannii
94	White spruce	Picea glauca
96	Blue spruce	Picea pungens
98	Sitka spruce	Picea sitchensis
99	Nonstocked	
101	Whitebark pine	Pinus albicaulis
102	Bristlecone pine	Pinus aristata
103	Knobcone pine	Pinus attenuata
104	Foxtail pine	Pinus balfouriana
106	Pinyon pine	Pinus edulis
108	Lodgepole pine	Pinus contorta

Tree Species	Common Name	Scientific Name
109	Coulter pine	Pinus coulteri
112	Apache pine	Pinus engelmannii
113	Limber pine	Pinus flexilis
114	Southwestern white pine	Pinus strobiformis
116	Jeffrey pine	Pinus jeffreyi
117	Sugar pine	Pinus lambertiana
118	Chihuahuan pine	Pinus leiophylla
119	Western white pine	Pinus monticola
120	Bishop pine	Pinus muricata
122	Ponderosa pine	Pinus ponderosa
124	Monterey pine	Pinus radiata
127	Gray pine	Pinus sabiniana
130	Scotch pine	Pinus sylvestris
133	Singleleaf pinyon	Pinus monophylla
134	Border pinyon	Pinus discolor
135	Arizona pine	Pinus arizonica
137	Washoe pine	Pinus washoensis
201	Bigcone Douglas-fir	Psuedotsuga macrocarpa
202	Douglas-fir	Psuedotsuga menziesii
211	Redwood	Sequoia sempervirens
212	Giant Sequoia	Sequoiadendron giganteum
231	Pacific yew	Taxus brevifolia
242	Western redcedar	Thuja plicata
251	California nutmeg	Torreya californica
263	Western hemlock	Tsuga heterophylla
264	Mountain hemlock	Tsuga mertensiana
298	Unknown softwood	n.a.
300	Acacia	Acacia sp.
312	Bigleaf maple	Acer macrophyllum
313	Boxelder	Acer negundo
321	Rocky Mountain maple	Acer glabrum
322	Bigtooth maple	Acer grandidentatum
326	Chinkapin oak	Quercus muehlenbergii
330	California buckeye	Aesculus californica
341	Ailanthus	Ailanthus altissima
351	Red alder	Alnus rubra
352	White alder	Alnus rhombifolia
361	Pacific madrone	Arbutus menzeisii

I D B Tree Species

PNW - FIA

Tree Species	Common Name	Scientific Name
374	Water birch	Betula occidentalis
375	Paper birch	Betula papyrifera
376	Western paper birch	Betula papyrifera var. commutata
431	Golden chinkapin	Castanopsis chrysophylla
475	Curlleaf mountain-mahogany	Cercocarpus ledifolius
476	True mountain-mahogany	Cercocarpus montanus
477	Hairy mountain-mahogany	Cercocarpus montanus va. Paucident
478	Birchleaf mountain-mahogany	Cercocarpus montanus var. glaber
479	Littleleaf mountain-mahogany	Cercocarpus intricatus
492	Pacific dogwood	Cornus nuttallii
500	Hawthorn	Cratagus spp.
510	Eucalyptus	Eucalyptus sp.
542	Oregon ash	Fraxinus latifolia
590	Holly	Ilex sp.
600	Walnut	Juglans sp.
631	Tanoak	Lithocarpus densiflorus
660	Apple	Malus sp.
730	California sycamore	Platanus racemosa
740	Cottonwood and poplar	Populus sp.
741	Balsam poplar	Populus balsamifera
742	Eastern cottonwood	Populus deltoides
745	Plains cottonwood	Populus deltoides ssp. monilifera
746	Quaking aspen	Populus tremuloides
747	Black cottonwood	Populus balsamifera ssp.trichocarpa
748	Fremont poplar	Populus fremontii
755	Mesquite	Prosopis sp.
760	Cherry	Prunus sp.
764	Bitter cherry	Prunus emarginata
800	Oak-deciduous	Quercus sp.
801	Coast live oak	Quercus agrifolia
805	Canyon live oak	Quercus chrysolepis
807	Blue oak	Quercus douglasii
810	Emory oak	Quercus emoryi
811	Englemann oak	Quercus engelmanii
814	Gambel oak	Quercus gambelii
815	Oregon white oak	Quercus garryana
818	California black oak	Quercus kelloggii
821	Valley (California) white oak	Quercus lobata

I D B Tree Species

PNW - FIA

Tree Species	Common Name	Scientific Name
829	Mexican blue oak	Quercus oblongifolia
839	Interior live oak	Quercus wislizeni
843	Silverleaf oak	Quercus hypoleucoides
850	Oak-evergreen	Quercus sp.
901	black locust	Robinia pseudoacacia
902	New Mexico locust	Robinia neomexicana
920	Willow	Salix sp.
981	California-laurel	Umbellularia californica
990	Tesota (Arizona ironwood)	Olneya tesota
998	Unknown hardwood	n.a.
999	Unknown species	n.a.

Forest Type Code List

I D B Forest Types

PNW - FIA

Forest Type Code	Common Name
11	Pacific silver fir
14	Santa Lucia fir
15	White fir
17	Grand fir
18	Corkbark fir
19	Subalpine fir
20	California red fir
21	Shasta red fir
22	Noble fir
41	Port-Orford-cedar
42	Alaska cedar
43	Unclassified on Pinyon/Juniper
45	Chaparral
50	Cypress
51	Arizona cypress
56	McNab cypress
58	Pinchot juniper
59	Redberry juniper
62	California juniper
63	Alligator juniper
64	Western juniper
65	Utah juniper
66	Rocky Mountain juniper
69	Oneseed juniper
72	Subablpine larch
73	Western larch
81	Incense cedar
92	Brewer spruce
93	Engelmann spruce
94	White spruce
96	Blue spruce

I D B Forest Types

PNW - FIA

Forest Type Code	Common Name
98	Sitka spruce
99	Nonstocked
101	Whitebark pine
102	Bristlecone pine
103	Knobcone pine
104	Foxtail pine
106	Pinyon pine
108	Lodgepole pine
109	Coulter pine
112	Apache pine
113	Limber pine
114	Southwestern white pine
116	Jeffrey pine
117	Sugar pine
118	Chihuahuan pine
119	Western white pine
120	Bishop pine
122	Ponderosa pine
124	Monterey pine
127	Gray pine
130	Scotch pine
133	Singleleaf pinyon
134	Border pinyon
135	Arizona pine
137	Washoe pine
201	Bigcone Douglas-fir
202	Douglas-fir
211	Redwood
212	Giant Sequoia
231	Pacific yew
242	Western redcedar

Forest Type Code	Common Name
251	California nutmeg
263	Western hemlock
264	Mountain hemlock
298	Unknown softwood
299	Mixed Conifer
300	Acacia
312	Bigleaf maple
313	Boxelder
321	Rocky Mountain maple
322	Bigtooth maple
330	California buckeye
341	Ailanthus
351	Red alder
352	White alder
361	Pacific madrone
374	Water birch
375	Paper birch
376	Western paper birch
431	Golden chinkapin
475	Curlleaf mountain-mahogany
476	True mountain-mahogany
477	Hairy mountain-mahogany
478	Birchleaf mountain-mahogany
479	Littleleaf mountain-mahogany
492	Pacific dogwood
510	Eucalyptus
542	Oregon ash
590	Holly
600	Walnut
631	Tanoak
660	Apple

Forest Type Code	Common Name
730	California sycamore
740	Cottonwood and poplar
741	Balsam poplar
742	Eastern cottonwood
745	Plains cottonwood
746	Quaking aspen
747	Black cottonwood
748	Fremont poplar
755	Mesquite
760	Cherry
768	Bitter Cherry
800	Oak-unclassified
801	Coast live oak
805	Canyon live oak
807	Blue oak
810	Emory oak
811	Englemann oak
814	Gambel oak
815	Oregon white oak
818	California black oak
821	Valley (California) white oak
826	Chinkapin oak
829	Mexican blue oak
839	Interior live oak
843	Silverleaf oak
850	Oak-evergreen
888	Unknown; access denied
901	black locust
902	New Mexico locust
920	Willow
981	California-laurel

I D B Forest Types

PNW - FIA

Forest Type Code	Common Name
990	Tesota (Arizona ironwood)
998	Unknown hardwood
999	Unknown type

Column Definitions

View the definitions on-screen with the
IDB Form called:
IDB_DOCUMENTATION_CODE_AND_
COLUMN_DEFINITIONS

PNW - FIA I D B Column Definitions PNW - FIA

TABLE NAME: **COND**

COLUMN NAME: **ACRES**

CODED? **No**

BRIEF DESCRIPTION: **Condition class acres. The number of acres the condition represents in the inventory.**

DEFINITION:

Each condition class on a plot represents a certain amount of acres in the broad inventory area. ACRES is used to summarize the amount of land area within a given category (i.e. owner, forest type, state, county, national forest). ACRES is an estimate of land area based on various stratification schemes and methods that were appropriate for each inventory. Each DATA_SOURCE (R5, R6, BLMWO, and FIA) used slightly different techniques to develop an estimate for this column. FIA ACRES were calculated by FIA staff at the time of the original compilation. The IDB staff used stratification information provided by R5, R6, and BLMWO staff to calculate plot and condition class acres for NFS and BLM inventories.

**Note: ACRES is an estimate of acres per condition, NOT acres per plot (plot is the primary sample unit). **

However, the sum of the ACRES across all conditions on one plot equals the acres represented by the individual plot location (the primary sample unit). Each row in the COND table has an estimate of land area (ACRES) associated with that condition on the plot. If more than one condition existed on the plot (see COND_CLASS definition), the plot area was proportioned among all unique conditions recorded on the plot, using COND_WT as follows: ACRES = plot acres * COND_WT.

For R6, a count of the total number of plots inside and outside of wilderness areas in each county was divided into the area of each category from Land Areas of National Forest System (http://www.fs.fed.us/land/staff/lar/) to create an estimate of the acres per plot, which was multiplied by the COND_WT to estimate ACRES.

For BLMWO, a count was made of the total number of plots in each county in the BLM database. Total land area by county was summarized from the 1995-1998 FIA inventory of western Oregon, for land owned by the BLM. The plot count was divided into the county area to derive the acres per plot, which was multiplied by the COND_WT to estimate ACRES. Please see the document “Area_Expansion_R6_BLMWO.doc” for more information.

For R5, condition class acres were estimated from strata on map-based GIS layers. A count of subplots was divided into the area of mapped vegetative strata to estimate acres per subplot, which was multiplied by the number of subplots per condition to calculate ACRES.

For FIA, stratification schemes varied by half-state and in general, included owner, land class, county, and survey unit as stratum identifiers. Plot counts within strata were divided into the stratum area to create an estimate of acres per plot, which was multiplied by the COND_WT to estimate ACRES.

For most counties, the total land area in the county matches the area reported in the 1990 Census Bureau report. However, because the IDB consists of many individual inventories, it was not possible to match land area figures for some counties. Please refer to the document "Adjusting Land Area to match Census Bureau reports" for an explanation of the differences.

Final Notes: This ACRES column is only used to summarize land area (i.e. Forest land area by forest type and owner in one state). Do NOT use ACRES to expand the per-acre tree columns to estimate population totals (i.e. do not multiply ACRES*volume/acre to get total

volume). Use the ACRES_VOL column to make this calculation.

Exception:
In the inventory of hardwood woodlands (often referred to as oak woodlands) conducted by FIA in California, trees were only measured on a partial sample of all woodland (GLC=44) plots. The sampling grid density for the oak woodland inventory was about 4.8 miles compared to a 3.4 mile grid for the standard inventory. Because of this, a different stratification scheme was used on the woodland plots, resulting in the need to use the ACRES_VOL expansion factor to expand all per-acre tree-level estimates AND to summarize most area information. The reason that ACRES_VOL should be used for area summaries is because most summaries are grouped by categories that are based on tree level information (i.e. forest type).
If a very general summary of land area is needed, which is grouped by land class or other category that does not rely on tree-level information, the ACRES column may be used to tabulate woodland area. Note that the woodland plots where trees were not sampled have only basic classification data such as owner, aspect, elevation, etc and were assigned a forest type=800 (unclassified oak woodland).

Please refer to the Technical Documentation or the user guide for details on area calculations.

See these column definitions for more details:
ACRES_VOL
COND_WT
COND_CLASS

TABLE NAME: **COND**

COLUMN NAME: **ACRES_VOL**

CODED? **No**

BRIEF DESCRIPTION: **Area expansion factor to expand per-acre estimates for a tree.**

DEFINITION:

An area expansion factor used specifically to expand per-acre tree attributes such as the volume/acre, biomass/acre, or trees/acre estimates to derive a value for population totals within the inventory area. When a per-acre estimate such as volume/acre or biomass/acre is multiplied by ACRES_VOL, the result is an estimate of the total volume or total biomass that the tree represents within the inventory.

ACRES_VOL often equals ACRES. When these columns are different, it indicates that a different stratification scheme or sampling design was used to provide a more accurate estimate of tree volume, biomass, or other attribute. The result is a different area expansion factor for tree attributes.

**Note: ACRES_VOL is an estimate of acres per condition, NOT acres per plot (plot is the primary sample unit). ** ACRES_VOL = plot acres * COND_WT.

This ACRES_VOL column is ONLY used to expand the per-acre tree columns to estimate population totals (i.e. do not use ACRES_VOL to summarize land area). Use the ACRES column to calculate and summarize the number of acres within a category of interest, such as Timberland area by forest type and stand size.

There are a wide variety of per-acre tree estimates in the IDB, such as whole tree volume (ground to tip), merchantable net volume, current annual growth volume, mortality volume, gross volume, above ground woody biomass, branch biomass, bark biomass, and stem biomass.

To estimate a population total, follow this example:
Tree attribute=attribute/acre * ACRES_VOL
i.e. Total Net Volume= net volume/acre * ACRES_VOL

Exception:
In the inventory of hardwood woodlands (often referred to as oak woodlands) conducted by FIA in California, trees were only measured on a partial sample of all woodland (GLC=44) plots. The sampling grid density for the oak woodland inventory was about 4.8 miles compared to a 3.4 mile grid for the standard inventory. Because of this, a different stratification scheme was used on the woodland plots, resulting in the need to use the ACRES_VOL expansion factor to expand all per-acre tree-level estimates AND to summarize most area information. The reason that ACRES_VOL should be used for area summaries is because most summaries are grouped by categories that are based on tree level information (i.e. forest type).

Please refer to the Technical Documentation or the user guide for details on area calculations.

TABLE NAME: COND

COLUMN NAME: **ACRES_VOL_MORT**

CODED? **No**

BRIEF DESCRIPTION: **Area expansion factor to expand per-acre estimates for a tree.**

DEFINITION:

An area expansion factor used specifically to expand per-acre tree attributes such as the volume/acre, biomass/acre, or trees/acre estimates to derive a value for population totals within the inventory area. When a per-acre estimate such as volume/acre or biomass/acre is multiplied by ACRES_VOL_MORT, the result is an estimate of the total volume or total biomass that the mortality tree represents within the inventory.

When expanding mortality volume/acre to the population level, use ACRES_VOL_MORT for the expansion. These acres take into account the subplots, conditions and plots that were not sampled for mortality and will provide a more accurate estimate of mortality volume.

Mortality_sampled_YN=Y identifies which forest conditions and plots were sampled for tree mortality. Not all plots and subplots were sampled in every inventory. Most commonly, FIA did not sample mortality on new subplots ('N subplots') or on most access denied plots, In addition, half of the FIA western washington inventory plots were not sampled for mortality because these plots were new to the inventory (i.e. had never been measured before). For FIACA, FIAWO and FIAEO mortality was only sampled on condition class 1.
Plots or conditions that had no mortality trees present, will still have a code of Y because the plot was visited and it was part of the inventory sample.

Because of the differences in data collection of mortality, it is necessary to use ACRES_VOL_MORT instead of ACRES_VOL to estimate population totals of mortality. For an even better estimate of population totals, use the database created from remeasured plots which is on file at the PNW FIA lab. This database includes a specific stratification that includes only the set of plots and subplots that were actually measured twice in the field.

Recent mortality: A mortality tree is a dead tree that has died within the past 5 or 10 years of the current inventory date. For FIA inventories, trees that died between remeasurement periods (about 10 years) are recent mortality. Note that for FIA, a mortality tree in the TREE_MORT table may or may not be still standing; but, in the TREE_DEAD table only trees that are standing dead and have the minimum snag dimensions have been pulled into the table. For NFS and BLM inventories, there was no previous measurement, so a recent mortality tree was estimated by field crews to have died sometime within the 5 years prior to the current inventory.

Please refer to the Technical Documentation or the user guide for details on area calculations.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
COND	**ASPECT_DEG**	

BRIEF DESCRIPTION: **Aspect of the condition class, in degrees**

DEFINITION:

The direction towards which a slope faces within the area of the condition class. Provides physiographic information about the condition. For each condition class on forest land, field crews recorded an aspect that represents the average aspect observed across all subplots in that condition. The Region 5 inventory also recorded aspect on non-forest lands. The aspect is coded as the azimuth (degrees) that corresponds to the direction (N, S, E, W, NE, NW, SE, SW). This column is not available for Region 6 and BLMWO data; it was recorded on each subplot only; it was not recorded at the condition class level.

TABLE NAME: **COND**

COLUMN NAME: **ASPECT_DIRECTION**

CODED? **Yes**

BRIEF DESCRIPTION: **Aspect of the condition class, in written form**

DEFINITION:

The direction towards which a slope faces within the area of the condition class. Provides physiographic information about the condition. For each condition class on forest land, field crews recorded an aspect that represents the average aspect observed across all subplots in that condition. The Region 5 inventory also recorded aspect on non-forest lands. The aspect is coded as a descriptive word (i.e. West, Northeast, Flat), which corresponds to the azimuth in degrees. This column is not available for Region 6 and BLMWO data; it was recorded on each subplot only; it was not recorded at the condition class level.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
COND	**CNTY**	

BRIEF DESCRIPTION: **County code**

DEFINITION:
A numeric code which identifies the county where the field plot is located. County codes are unique within a state. See the code definitions for a list of counties and their text names. Use the table IDB_COUNTY_NAMES to use names of counties in queries.

CNTY should not be used to link tables. Use COND_ID which is a unique identifier

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
COND	**COND_CLASS**	

BRIEF DESCRIPTION: **Condition class code**

DEFINITION:

A numeric code that identifies an individual condition class on a plot. Condition classes are defined by differences in land class (forest, non-forest), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), owner, or other situations that occur across the plot area. The condition in the center of subplot 1 is recorded as condition class #1 in most inventories, and the rest of the conditions are numbered sequentially as they are encountered on the subplot or plot. Because plots are installed in specific locations and each subplot is installed in fixed positions, it is possible for subplots to straddle condition boundaries. When this occurs, the boundaries are mapped and specific details are recorded for each condition. The condition class code is recorded with every piece of information associated with that particular condition. At the data compilation level, if more than one condition exists, the plot is effectively partitioned into "condition class plots" resulting in more than one record for each plot. Classifications and summaries are made at the condition class level, where data collected within each condition class are essentially considered and treated as a plot.

Because the IDB consists of data from a variety of inventory designs, condition class assignments were handled in slightly different ways. In the FIACA, FIAEO, and FIAWO inventories, multiple conditions were recorded in the field on each subplot (if present). In the FIAEW, FIAWW, R5, R6, and BLM inventories, only one condition class was identified on each subplot (the entire subplot area was assigned the same condition number).

The Region 6 and BLMWO inventories did not record condition classes in the field, so the IDB staff developed a procedure to identify broad condition classes in the office. The procedure was based on information contained in the plant association code, which field crews recorded on each subplot. Please refer to the Technical Documentation for a detailed description of the condition class procedure. In general, the Series codes (1st 2 letters in the plant association code) were evaluated to determine whether the subplot was forest or non-forest. All non-forest Series were lumped into one condition class with a ground land class (see GLC definition) code of 60. Forest plant associations were further divided into softwood or hardwood forests, and finally assigned a condition class based on the 2nd letter of the Series code which identifies the dominant potential vegetation (species). Using this algorithm, we were able to assign a condition class code to each subplot.

The Region 5 inventory recorded condition classes in the field and were based on differences in land class or broad differences in forest type, stand size, stand origin or stand density. R5 staff provided condition class codes for the IDB.

The PNW-FIA inventories identified condition classes in the field. Conditions were defined as a distinct land class (timberland, oak woodland, nonforest, etc), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), or an area that was out of the sampled inventory area (i.e. outside the state or in a reserved area). Subplots that straddle condition class boundaries were mapped and a proportion was estimated for the amount of the subplot area within each condition. The condition identified at the center of subplot #1 was always labeled as condition class '1'. When a condition class was not associated with any subplot center (such as a road that crosses the outer portion of one subplot) it is called a "sliver". To classify an area as a different condition based on the vegetation composition (forest stand), the area must be at least 2.5 ha (6.25 ac) in size and

at least 35m (120 ft) wide. These conditions are often associated with changes in physioclass such as: (a) steep north slope vs. steep south slope; (b) swampy flat vs. well-drained upland; or (c) deep-soiled flat vs. thin-soiled upland. In addition, a new condition would be recorded when crossing the boundary between pure hardwood to pure softwood, from regeneration to sawtimber stands, poorly stocked to well-stocked stands, or from uncut to partially harvested areas. To classify an area as a different condition based on the land class, the area on the subplot must be at least .4 hectares (1 acre) in size and 35 meters 120 feet) wide.

TABLE NAME:	COLUMN NAME:	CODED? **No**
COND	**COND_ID**	

BRIEF DESCRIPTION: **Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Condition Class (COND) table. COND_ID is a key field, used to join all other tables in the database except the PLOT table.

TABLE NAME: **COND**

COLUMN NAME: **COND_WT**

CODED? **No**

BRIEF DESCRIPTION: **Condition class weight**

DEFINITION:

The proportion of the entire plot area that contains the condition class. It is the estimated proportion of total sampled area at a single plot location which falls into a single condition class. This variable is calculated by averaging the proportions of this condition class that were recorded on each individual subplot on the plot. The plot weight is used to partition the plot acres among condition classes. Each condition class record in the COND table has an acre figure associated with it, which is used to create area summaries or to expand the per-acre variables to population estimates. Condition class acres (ACRES) are calculated by multiplying the acres represented by the whole plot times the condition weight. This column can also be used to calculate a weighted average during analysis or summary of the data.

For R5, R6, BLMWO, FIAEW, FIAWW:
COND_WT= (number of subplots in the condition) / (total number of subplots on the plot)

For FIAEO, FIAWO, FIACA:
COND_WT= (sum of the subplot proportions in the condition) / (total number of subplots on the plot)

COND_WT is null on Proxy plots (PROXY_YN=Y or SAMP_TYPE=7).

TABLE NAME: **COND**

COLUMN NAME: **CWD_sampled**

CODED? **Yes**

BRIEF DESCRIPTION: **Indicates that a condition was sampled for CWD**

DEFINITION:

Identifies which conditions were sampled for CWD and have data and transect information in the DOWN_WOOD table.
All conditions that were sampled by a transect (whether there was tally recorded or not) have a CWD_sampled code = 1. When conducting an analysis of CWD data, select conditions with a CWD_sampled code = 1 from the COND table.

In FIACA, FIAEO, and FIAWO inventories, transects were installed when at least one condition on the plot was measured forestland (SAMP_TYPE=1). NOTE: Because these inventory designs map and record the boundaries of different conditions on each subplot, it is possible that a transect line might not reach into every condition present on the plot. For example, a timberland condition might be present in the COND table but no transect or CWD data are present in the DOWN_WOOD table—simply because a transect did not cross the boundary of this condition. These conditions have a CWD_samp code=3. Most of these conditions cover a small area on the plot (<20%) and are often slivers.

Intentionally unsampled conditions have a CWD_sampled code=2, and include nonforest, access denied forest land, unmeasured forest land (by design), and proxy plots.

Please read the technical document called "Down Wood Inventories in the IDB.doc" for specific details about the down wood inventories, including when and how plots were sampled.

TABLE NAME: **COND**

COLUMN NAME: **DATA_SOURCE**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies the source of the inventory data.**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from nine different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by five individual forest inventory programs from two agencies, including the Forest Inventory and Analysis program of the Pacific Northwest Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, the Natural Resource Inventory program of the Bureau of Land Management in western Oregon and the Interior West Forest Inventory and Analysis Program of the Rocky Mountain Research Station. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Rocky Mountain Research Station's Interior West FIA unit inventoried small pieces of Washington (Kaniksu NF) and California (Toiyabe NF) and are coded RMRS.

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME: **COND**

COLUMN NAME: **FOR_TYPE**

CODED? **Yes**

BRIEF DESCRIPTION: **Forest type**

DEFINITION:

A classification of the forest stand based on the tree species which dominates on the condition class. Forest type codes are the same as tree species codes with a few exceptions (i.e. mixed conifer type). See the Forest Type Table for a list of the numerical codes along with the common and scientific names. Forest type is assigned by evaluating the relative proportions of live mainstand (STAND_POS=1) stocking (including cull trees) that occur on the condition. First, the total amount of softwood and hardwood stocking is calculated to determine if it is a hardwood or softwood stand. If softwood stocking exceeds hardwood stocking, then a softwood forest type was assigned by identifying the softwood species with the largest amount of stocking. The same procedure is followed if the forest is a hardwood stand.

Forests are considered mixed stands when softwood stocking is >= 31% and <= 69% of total stocking-- in this case, a second forest type (FOR_TYPE_SECDRY) is assigned to more fully describe these stands. If the primary forest type is a softwood then the secondary forest type is a hardwood (and vice-versa).

Note that If total stocking is < 10%, the condition class is assigned a nonstocked forest type classification.
If no trees were tallied on forest land where a plot was installed, a nonstocked forest type was assigned.

In some inventories, unproductive forest land was not measured for tree attributes. In this case, the conditions were assigned a general forest type code (such as 800 for Oaks) for reporting purposes. The R5, R6, BLMWO, FIAEO, and FIAWO inventories sampled ALL forest land; the remaining inventories sampled only timberland (or just a portion of forest land) in terms of collecting tree level data. A forest type code was assigned to all forested conditions.

Note that mainstand trees are those found in the manageable stand on the condition. The manageable stand is currently available for timber production, compared to a younger stand (the future manageable stand) and to trees that are older remnants of a previous stand.

TABLE NAME: **COND**

COLUMN NAME: **FOR_TYPE_GRP**

CODED? **Yes**

BRIEF DESCRIPTION: **Forest type species group**

DEFINITION:

A column used for grouping the forest type codes into hardwood types, softwood types, chaparral, nonstocked type, or unknown types. It is used primarily for reporting and analysis purposes.

TABLE NAME: **COND**

COLUMN NAME: **FOR_TYPE_SECDRY**

CODED? **Yes**

BRIEF DESCRIPTION: **Forest type, second level, indicates a mixed stand**

DEFINITION:

When forests are a softwood/hardwood mixture, both a primary and secondary forest type are calculated and assigned to the condition. Forests are considered mixed stands when softwood stocking is >= 31% and <= 69% of total stocking, and a second forest type is assigned to more fully describe these stands. If the primary forest type (FOR_TYPE) is a softwood then the secondary forest type is a hardwood (and vice-versa).

In general, forest types are a classification of the forest stand based on the tree species which dominates on the condition class. Forest type codes are the same as tree species codes with a few exceptions (i.e. mixed conifer type). See the Forest Type Table for a list of the numerical codes along with the common and scientific names. The primary forest type is assigned by evaluating the relative proportions of live mainstand (STAND_POS=1) stocking (including cull trees) that occur on the condition. First, the total amount of softwood and hardwood stocking is calculated to determine if it is a hardwood or softwood stand. If softwood stocking exceeds hardwood stocking, then a softwood forest type was assigned by identifying the softwood species with the largest amount of stocking. The same procedure is followed if the forest is a hardwood stand. Once the primary forest type is assigned, the stocking levels are checked to determine if the stand is either pure or mixed.

In some inventories, unproductive forest land was not measured for tree attributes. In this case, the conditions were assigned a general forest type code (such as 800 for Oaks) for reporting purposes. The R5, R6, BLMWO, FIAEO, and FIAWO inventories sampled ALL forest land; the remaining inventories sampled only timberland (or just a portion of forest land) in terms of collecting tree level data. A forest type code was assigned to all forested conditions.

Note that mainstand trees are those found in the manageable stand on the condition. The manageable stand is currently available for timber production, compared to a younger stand (the future manageable stand) and to trees that are older remnants of a previous stand.

TABLE NAME: **COND**

COLUMN NAME: **FOREST_OR_BLM_DISTRICT**

CODED? **Yes**

BRIEF DESCRIPTION: **Administrative National Forest code**

DEFINITION:

A numeric code for the National Forest or BLM district where the field plot is located. Region 5 has 18 individual National Forests, Region 6 has 19 National Forests, and the BLM has 6 districts in western Oregon. Inventories are generally organized and compiled by Forest or BLM district. In addition there is one forest in Region 1 in Washington and one forest in Region 4 in California.

The FOREST_OR_BLM_DISTRICT code combined with CNTY and PLOT (plot number) uniquely identify each plot location in the R5 data source. For R6 and BLMWO as well as RMRS data sources the plot number is unique. However, it is recommended that the plot ID column in this table be used to uniquely identify every plot in the database, because FIA inventories require state and county along with plot number to be unique. The PLOT_ID column gets rid of the need to include multiple columns to uniquely identify a plot.

The FOREST_OR_BLM_DISTRICT column is blank for FIA inventories.

TABLE NAME: **COND**

COLUMN NAME: **GLC**

CODED? **Yes**

BRIEF DESCRIPTION: **Ground land class**

DEFINITION:

Ground land class (GLC) refers to the type of forest or non-forest condition that exists on all or a portion of the plot. The GLC code describes land such as forest, oak-woodland, timberland, chaparral, or nonforest.
Forest land is defined as land that has at least 10% of the area stocked (or covered) with trees and is not developed for a non-forest use. Forest land can be either 'productive' (timberland) or unproductive "other forest" such as low-site forest, oak woodland, pinyon-juniper, subalpine, rocky sites, wetlands, and others. Non-forest lands include grasslands, pasture, roads, power lines, parks, urban areas, non-vegetated land such as barren rock, sand, pumice, lava, etc., farms, nurseries and other similar areas. GLC is used in compilation and reporting, to sort, select, and group plots into broad categories. For example, a certain type of compilation routine might be applied exclusively to oak-woodland plots or a table which summarizes volume on timberland might be needed for analysis. The majority of summary tables produced in our research publications are for timberland. GLC will be used often by most users of the data.

A summary of the GLC codes: Timberland (GLC=20), Unproductive 'other' forest land (GLC 40's), and non-forest land (GLC 60's).

Although data collection crews record GLC in the field, the timberland classification may change in the office. Timberland conditions are passed through a compilation routine which determines the mean annual increment (MAI) of the condition. If the MAI is less than 20 cubic feet per acre, the timberland GLC code will be changed to 49 (unproductive forest land or low site timberland). In all other cases, the ground land class will remain unchanged.

GLC was not available in the Region 6 or BLMWO inventories. The IDB staff developed a procedure to estimate the GLC for each condition, in the office. The new GLC was based on site index from measured site trees, mean annual increment calculations, and plant association codes.

Please see the Technical Documentation for a description of the GLC procedure used by IDB staff.

TABLE NAME: **COND**

COLUMN NAME: **GLC_GROUP**

CODED? **Yes**

BRIEF DESCRIPTION: **Ground land class grouping code**

DEFINITION:
A code to sort and group GLC codes into useful categories for summary and analysis.

TABLE NAME: **COND**

COLUMN NAME: **GRID_WT_FAC**

CODED? **No**

BRIEF DESCRIPTION: **A weight factor for sample intensity**

DEFINITION:

A factor that indicates the sample intensity of plots in the inventory. Not all inventories sampled from the same size grid or chose the same number of plots. This column contains values that put each plot on an equal weighting. A value of 1 was assigned to plots on a 3.4 mile (5.5km) grid (the most common grid), and all other plots were assigned a value relative to this starting point.

This weighting factor is used to calculate SAMPLING_WT_FAC which includes the effect of varying condition class sizes on a plot. The SAMPLING_WT_FAC should be used as the weight when calculating weighted means of per-acre estimates during an analysis or summary of tree or down wood data.

A value is only entered for plots that are measured forest land (SAMP_TYPE=1), access denied forest land that was modeled forward (SAMP_TYPE=2), and on a few R5 chaparral plots where down wood was sampled.

Note that this grid weight does not apply to mortality trees because mortality was not estimated on every plot. Please use GRID_WT_MORT_FAC or SAMPLING_WT_MORT_FAC when analyzing recent mortality data from the TREE_MORT table. Also, see Mortality_sampled_YN for more information.

The grid weights were assigned as follows:
FIACA, FIAWO, FIAEO, FIAEW = 1.0 (3.4m grid)
FIAEO in the juniper inventory = 2.0
FIACA, oak woodland inventory = 2.0
FIAWW = .5 (doubled intensity off of a 3.4m grid)
R6, outside wilderness areas = .25 (four times the intensity on a 3.4m grid)
R6, inside wilderness areas = 1.0
BLMWO = 1.0
R5 = 1.0
RMRS = 0.9 (5km grid)

TABLE NAME: **COND**

COLUMN NAME: **GRID_WT_MORT_FAC**

CODED? **No**

BRIEF DESCRIPTION: **A weight factor for sample intensity where mortality was measured**

DEFINITION:

A factor that indicates the sample intensity of plots in the inventory that were sampled for recent mortality. Not all inventories sampled from the same size grid and not all plots in the FIA inventory were sampled for mortality. This column contains values that put each plot on an equal weighting. A value of 1 was assigned to plots on a 3.4 mile (5.5km) grid (the most common grid), and all other plots were assigned a value relative to this starting point.

This weighting factor is used to calculate SAMPLING_WT_MORT_FAC which includes the effect of varying condition class sizes on a plot. The SAMPLING_WT_MORT_FAC should be used as the weight when calculating weighted means of per-acre estimates during an analysis or summary of mortality tree data from the TREE_MORT table.

A value is only entered for plots that are measured forest land (SAMP_TYPE=1) and access denied forest land that was modeled forward (SAMP_TYPE=2).

When analyzing mortality data, select Mortality_sampled_YN =Y to include only those plots that were intentionally sampled for tree mortality.

He grid weights were assigned as follows:
FIACA, FIAWO, FIAEO, FIAEW = 1.0 (3.4m grid)
FIAEO in the juniper inventory = 2.0
FIACA, oak woodland inventory = 2.0
FIAWW = 1.0 (3.4m grid)
R6, outside wilderness areas = .25 (four times the intensity on a 3.4m grid)
R6, inside wilderness areas = 1.0
BLMWO = 1.0
R5 = 1.0
RMRS = 0.9 (5km grid)

TABLE NAME: COLUMN NAME: CODED? **Yes**

COND **Live_trees_sampled_YN**

BRIEF DESCRIPTION: **Indicates that a condition was sampled for live trees**

DEFINITION:

Identifies which forest conditions were sampled for live trees. Not all forest land was sampled in every inventory. Most commonly, FIA inventories did not always sample unproductive forest land such as juniper and oak woodlands or reserved forests. In some cases, a partial sample of all forest land plots was conducted, resulting in some plots having a Live_trees_sampled_YN =Y and others =N.

SAMP_TYPE and GLC also provide information on what plots were sampled and tree measurements taken; see the code listing for this columns.

R5: All forest land was sampled for trees; GLC's = 20, 40's; Reserved forests were sampled.
R6: All forest land was sampled for trees; GLC's = 20, 40's; Reserved forests were sampled.
BLMWO: All forest land was sampled for trees; GLC's = 20, 40's; Reserved forests were sampled.
FIAEO: All forest land was sampled for trees; GLC's = 20, 40's; Reserved forests were sampled.
FIAWO: All forest land was sampled for trees; GLC's = 20, 40's; Reserved forests were sampled.
FIACA: Timberland and a partial sample of woodland plots were sampled for trees; GLC's = 20, some 44's, 49; Reserved forests were NOT sampled.
FIAEW: Only timberland was sampled for trees; GLC's = 20, 49; Reserved forests were NOT sampled.
FIAWW: Only timberland was sampled for trees; GLC's = 20, 49; Reserved forests were NOT sampled.
RMRS: All forest land was sampled for trees; GLC's = 20, 40's; Reserved forests were sampled.

When analyzing or summarizing data in the IDB, select Live_trees_sampled_YN=Y to get plots and conditions where trees were intentionally sampled (measured). Plots or conditions that had no tally trees present, will still have a Live_trees_sampled_YN=Y because the plot was visited and it was part of the inventory sample.

TABLE NAME: **COND**

COLUMN NAME: **MAI**

CODED? **No**

BRIEF DESCRIPTION: **Mean annual increment**

DEFINITION:

The mean annual increment (MAI) for a stand of trees in a timberland or low-site forest condition class. This is the increment in volume of a forest stand averaged over the period between age zero (when the stand was established) and the age at which the MAI culminates (reaches its maximum value). Culmination occurs at the age where the curves of MAI and current annual increment intersect. MAI is measured in terms of cubic-feet per acre per year or cubic meters per hectare per year and is used as a measure of site capacity or site productivity. MAI is computed from equations developed for a given site species and site index. FIA inventories adjust the MAI by a plant stockability factor and the proportion of stockable area for each condition class, to account for low-productivity sites. The MAI is used to determine the site productivity for timberland condition classes. If the MAI <= 20 ft3/acre/year the ground land class code is changed to 49: low-site unproductive forest land.

See the definition for ground land class (GLC) for more information.
See the Technical Documentation for the site index and MAI procedures and equations used in the IDB.

TABLE NAME: **COND**

COLUMN NAME: **Mortality_sampled_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Indicates that a condition was sampled for recent mortality trees**

DEFINITION:

Identifies which forest conditions and plots were sampled for tree mortality. Not all plots and subplots were sampled in every inventory. Most commonly, FIA did not sample mortality on new subplots ('N subplots') or on most access denied plots, In addition, half of the FIA western washington inventory plots were not sampled for mortality because these plots were new to the inventory (i.e. had never been measured before). For FIACA, FIAWO and FIAEO mortality was only sampled on condition class 1.

When expanding mortality volume/acre to the population level, use ACRES_VOL_MORT for the expansion factor. These acres take into account the subplots, conditions and plots that were not sampled for mortality and will provide a more accurate estimate of mortality volume.

When analyzing or summarizing mortality data in the IDB, select Mortality_sampled_YN=Y to get plots and conditions where these trees were intentionally sampled (measured). Plots or conditions that had no mortality trees present, will still have a code of Y because the plot was visited and it was part of the inventory sample.

Recent mortality: A mortality tree is a dead tree that has died within the past 5 or 10 years of the current inventory date. For FIA inventories, trees that died between remeasurement periods (about 10 years) are recent mortality. Note that for FIA, a mortality tree in the TREE_MORT table may or may not be still standing; but, in the TREE_DEAD table only trees that are standing dead and have the minimum snag dimensions have been pulled into the table. For NFS and BLM inventories, there was no previous measurement, so a mortality tree was estimated by field crews to have died sometime within the 5 years prior to the current inventory.

If Mortality_sampled_YN=Y, and trees were tallied on the condition, they will be stored in the TREE_MORT table. In addition, for FIA only, if Mortality_sampled_YN=Y, and the trees tallied are standing with a minimum size to qualify as an FIA snag, they will be stored in the TREE_DEAD table. All mortality trees for R5, R6, BLMWO, RMRS are standing dead trees and stored in the TREE_DEAD table.

TABLE NAME: **COND**

COLUMN NAME: **OWN_GROUP**

CODED? **Yes**

BRIEF DESCRIPTION: **Broad owner group**

DEFINITION:

The broad owner group for the land where the field plot is located. Identifies whether the plot is in one of 3 types of public ownership or in private ownership. The owner was identified through county courthouse records, and assigned to an ownership class. There is one owner for all conditions on each plot. OWNER is used mainly for reporting.

Because of confidentiality laws (In an amendment of the Food Securities Act, Congress directed FIA to ensure that FIA plot data cannot be linked to its owner), FIA is not allowed to release information about private ownership of a plot. FIA is required to group the detailed private owner codes and produce a broad owner code for distribution in FIA databases.

TABLE NAME: **COND**

COLUMN NAME: **OWNER**

CODED? **Yes**

BRIEF DESCRIPTION: **Detailed owner group**

DEFINITION:

The detailed owner group for the land where the field plot is located. Identifies a more detailed level of ownership for public lands compared to the OWN_GROUP column. Because of confidentiality laws , a detailed breakdown for private ownerships is not provided in this column. The owner was identified through county courthouse records, and assigned to an ownership class. There is one owner for all conditions on each plot. OWNER is used mainly for reporting.

Because of confidentiality laws (In an amendment of the Food Securities Act, Congress directed FIA to ensure that FIA plot data cannot be linked to its owner), FIA is not allowed to release information about private ownership of a plot. FIA is required to group the detailed private owner codes and produce a broad owner code for distribution in FIA databases.

TABLE NAME: **COND**

COLUMN NAME: **PLANT_ASSOC_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **Plant association code**

DEFINITION:

Identifies the plant association that describes the condition class. This data is not available in all inventories at the condition class level. Plant association was recorded in the FIAEO, FIAEW, and FIAWW inventories, but not recorded in the R5, FIACA, or FIAWO inventories. The Region 6 and BLMWO inventories recorded plant association for each individual subplot, which is stored in the SUBPLOT table.

The plant association is a classification system that describes the series, subseries, and association for vegetation within a given area. The codes are 6-digit and alphanumeric, and include information on major tree species, life form, seral status, and structure. The plant association identifies the potential natural vegetation and community. Plant association in the R6 and BLMWO inventory was used to identify condition classes on the plot and to assign average site index values when site trees were missing. Condition classes were assigned in the office, with an algorithm that evaluated the plant association code.

Please see the Technical Documentation for details on the use of plant association codes to derive condition class, site index, and ground land class for R6 and BLMWO inventories.

For more information, see the primary reference document: Pacific Northwest ecoclass codes for seral and potential natural communities, by Fred Hall, General Technical Report PNW-GTR-418, 1998.

Please refer to the crosswalk table IDB_PLANT_ASSOCIATIONS for the plant association name that corresponds to each code.

TABLE NAME: **COND**

COLUMN NAME: **PLOT**

CODED? **No**

BRIEF DESCRIPTION: **Original plot number**

DEFINITION:

The original numeric code that identified the individual field plot location for a given inventory (data source). This is the number used by field crews and office staff to identify all materials and information for that plot while compiling and executing the inventory. Some plot numbers are unique within a Forest and others are unique in the entire regional inventory. In FIA inventories most plot numbers are unique within a state and county.

Because of this variability in uniqueness from the many data sources in this database, it is recommended that the column PLOT_ID be used to uniquely identify every plot location in this database. ID is unique across all data sources and all inventories.

The column PLOT is useful to link to other databases that only contain the original plot number as an identifier.

TABLE NAME: **COND**

COLUMN NAME: **PLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each plot row in the entire PLOT table, [Key field]**

DEFINITION:

A sequential number which uniquely identifies each plot (row) in the entire PLOT table. This number is a key field used when joining the COND table to the PLOT table.

It is recommended that PLOT_ID be used when summarizing or grouping data by plot, because the original plot numbers (PLOT) are not unique in the database. For example, in FIA data, a plot number is unique within state and county, and in R5 and R6 it is unique within region and national forest.

TABLE NAME: **COND**

COLUMN NAME: **QMD_HWD_CM**

CODED? **No**

BRIEF DESCRIPTION: **Quadratic mean diameter of the hardwood component of the forest**

DEFINITION:

The quadratic mean diameter (QMD) of all hardwood trees in the forested condition. Trees that are in the mainstand and residual overstory (see STAND_POS) are used in the calculation. The QMD is the average diameter of this group of trees in the condition class area, corresponding to their basal area.
Mainstand trees: those that make up the manageable stand, generally available for timber production. Residual overstory trees: scattered large trees left after past logging or fire, often growing in association with a mainstand of seedlings, saplings or small poles.

To calculate QMD, the sum of the basal area in square meters per hectare is divided by the sum of the trees per hectare, which is then converted from basal area to diameter and from square meters to square centimeters. The square root of this calculation results in an estimate of QMD for the stand.

Note in FIA inventories, the following trees are excluded from the QMD calculation: suppressed trees, mainstand seedlings unless the pivot tree is a seedling, softwood saplings (dbh < 12.5 cm) with a low crown ratio, and mainstand trees with a crown class indicating the tree receives no direct light if the pivot tree dbh is >= 12.5 cm. Pivot tree is a tree that characterizes the primary stand, determined by an algorithm in the FIA programs.

TABLE NAME: **COND**

COLUMN NAME: **QMD_SWD_CM**

CODED? **No**

BRIEF DESCRIPTION: **Quadratic mean diameter of the softwood component of the forest**

DEFINITION:

The quadratic mean diameter (QMD) of all softwood trees in the forested condition. Trees that are in the mainstand (see STAND_POS) are used in the calculation. The QMD is the average diameter of this group of trees in the condition class area, corresponding to their basal area. Mainstand trees are those that make up the manageable stand, generally available for timber production.

To calculate QMD, the sum of the basal area in square meters per hectare is divided by the sum of the trees per hectare, which is then converted from basal area to diameter and from square meters to square centimeters. The square root of this calculation results in an estimate of QMD for the stand.

Note in FIA inventories, the following trees are excluded from the QMD calculation: suppressed trees, mainstand seedlings unless the pivot tree is a seedling, softwood saplings (dbh < 12.5 cm) with a low crown ratio, and mainstand trees with a crown class indicating the tree receives no direct light if the pivot tree dbh is >= 12.5 cm. Pivot tree is a tree that characterizes the primary stand, determined by an algorithm in the FIA programs.

TABLE NAME: **COND**

COLUMN NAME: **QMD_TOT_CM**

CODED? **No**

BRIEF DESCRIPTION: **Quadratic mean diameter of the forest**

DEFINITION:

The combined quadratic mean diameter (QMD) of softwood trees in the mainstand and all hardwood trees in both the mainstand and residual overstory in each condition class. The QMD is the average diameter of this group of trees in the condition class area, corresponding to their basal area.

Mainstand trees: those that make up the manageable stand, generally available for timber production. Residual overstory trees: scattered large trees left after past logging or fire, often growing in association with a mainstand of seedlings, saplings or small poles.

To calculate QMD, the sum of the basal area in square meters per hectare is divided by the sum of the trees per hectare, which is then converted from basal area to diameter and from square meters to square centimeters. The square root of this calculation results in an estimate of QMD for the stand.

Note in FIA inventories, the following trees are excluded from the QMD calculation: suppressed trees, mainstand seedlings unless the pivot tree is a seedling, softwood saplings (dbh < 12.5 cm) with a low crown ratio, and mainstand trees with a crown class indicating the tree receives no direct light if the pivot tree dbh is >= 12.5 cm. Pivot tree is a tree that characterizes the primary stand, determined by an algorithm in the FIA programs.

TABLE NAME: **COND**

COLUMN NAME: **REM_PERIOD**

CODED? **No**

BRIEF DESCRIPTION: **Remeasurement period**

DEFINITION:

The length of the remeasurement period in years. In FIA inventories, this is the number of years between measured occasions which is approximately 10 years. For R5, R6, RMRS, and BLM inventories, there has only been one inventory cycle with no remeasurement at the time this database was created. Because estimates of current annual growth are calculated for each inventory (requires estimates for a previous period of time), an artificial period of 10 years was assigned to each plot in the office. The remeasurement period is needed to estimate diameter and height growth for each tree. Diameter increments were used to estimate a diameter for a point in time 10-years earlier. An estimate of annual diameter growth is then derived from this, which in turn is used to calculate an estimate of current annual volume growth for each tree. The remeasurement period is also needed to estimate diameter growth increment using FVS equations, which was necessary for some inventories where increment was not measured in the field. The estimated previous diameter is used to estimate a previous height on the tree, with FVS equations.

TABLE NAME: **COND**

COLUMN NAME: **RESERVED_TYPE**

CODED? **Yes**

BRIEF DESCRIPTION: **Reserve status code**

DEFINITION:

A code identifying the type of reserved status assigned to this condition. The term reserved refers to the protection status of the land where the plot is located. If a plot is unreserved, it is potentially available for timber management. Land can be reserved as wilderness, non-wilderness, or pending wilderness designation.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
COND	**RESERVED_YN**	

BRIEF DESCRIPTION: **Indicates whether the plot is reserved or not.**

DEFINITION:
A code identifying whether the plot is in a reserved or unreserved status, with respect to timber harvesting. These records are identified by a simple yes or no (Y or N).
This column is used often when summarizing timberland area or when information about unreserved forest land is required.

TABLE NAME: **COND**

COLUMN NAME: **SAMP_TYPE**

CODED? **Yes**

BRIEF DESCRIPTION: **Sample type**

DEFINITION:

The sample type identifies whether a full plot was installed where trees were measured and extensive data were collected. It is determined, in general, by the land classification for the condition class. Sample type codes identify whether forest land was measured, unmeasured, or projected (due to denied access). This code also identifies if the plot was chaparral or nonforest, where full plots were not installed. If plots are outside of the planned inventory area they receive a code of 0. If a plot was access denied and not projected forward it has a code=6 and no longer in the inventory. Sample type is 7 for all proxy plots (PROXY_YN=Y). Note that COND_WT is null on all proxy plots.

If sample type is 1 it is possible that no trees were tallied. This condition is still measured forest land, because crews went to the plot to measure trees, but either none were present or none qualified for selection as part of the sample.

When summarizing tree attributes such as volume, biomass, trees/acre, etc., select conditions with a sample type of 1 or 2. When developing estimates of land area, select conditions with a sample type of 1,2,3,4, or 5 and sum the ACRES column within a category of interest.

(see the technical documentation for information on how to work with the FIACA woodland inventory, which is a subsample of all forestland plots)

TABLE NAME: **COND**

COLUMN NAME: **SAMPLING_WT_FAC**

CODED? **No**

BRIEF DESCRIPTION: **Sampling weight factor for estimating weighted means**

DEFINITION:

A factor that reflects the sample intensity of plots and the size of the condition class on the plot. Not all inventories sampled from the same size grid and not all conditions were the same size in the FIA inventory. This column contains values that put each plot on an equal weighting. SAMPLING_WT_FAC = GRID_WT_FAC * COND_WT

This weighting factor should be used as the weight when calculating weighted means of per-acre estimates during an analysis or summary of tree or down wood data, except for mortality trees from the TREE_MORT table (use SAMPLING_WT_MORT_FAC). Because of the many inventories in the IDB, users should always calculate a weighted mean when averaging per-unit-area estimates across inventories (R5,R6,BLMWO, FIA).

A value is only entered for plots that are on measured forest land (SAMP_TYPE=1), access denied forest land that was modeled forward (SAMP_TYPE=2), and on a few R5 chaparral plots where down wood was sampled.

When analyzing tree or down wood data, it is best to use the columns Live_tree_sampled_YN, Snag_sampled_YN and CWD_sampled to select the appropriate plots for the analysis.

Please see GRID_WT_FAC for more information on specific weights assigned for a sample grid.

TABLE NAME: COLUMN NAME: CODED? **No**

COND **SAMPLING_WT_MORT_FAC**

BRIEF DESCRIPTION: **A weighting factor for estimating means of recent mortality data**

DEFINITION:

A factor that reflects the sample intensity of plots and the size of the condition class on the plot, where mortality trees were sampled. Not all inventories sampled from the same size grid and not all plots and conditions in the FIA inventory were sampled for mortality. This column contains values that put each plot on an equal weighting. A value of 1 was assigned to plots on a 3.4 mile (5.5km) grid (the most common grid), and all other plots were assigned a value relative to this starting point.

SAMPLING_WT_MORT_FAC = GRID_WT_MORT_FAC * COND_WT

This weighting factor should be used as the weight when calculating weighted means of per-acre estimates during an analysis or summary of mortality tree data from the TREE_MORT table. Because of the many inventories in the IDB, users should always calculate a weighted mean when averaging per-unit-area estimates across inventories (R5,R6,BLMWO, FIA).

A value is only entered for plots that are measured forest land (SAMP_TYPE=1) and access denied forest land that was modeled forward (SAMP_TYPE=2).

When analyzing mortality data, select Mortality_sampled_YN =Y to include only those plots that were intentionally sampled for tree mortality. For FIA, most new plots and/or newly installed subplots and condition classes >1 were not sampled for mortality.

Please see GRID_WT_MORT_FAC and Mortality_sampled_YN for more information.

TABLE NAME: **COND**

COLUMN NAME: **SITE_CLASS_DUNNINGS**

CODED? **Yes**

BRIEF DESCRIPTION: **Dunnings site class**

DEFINITION:

A classification of the site productivity within the condition class. Dunnings site class procedures are commonly used in California to estimate site productivity. This column is available only on plots in California.

There are 6 site class codes and 0 is a valid code.

Dunning, Duncan and L. H. Reineke. 1933. Preliminary Yield Tables for Second Growth Stands in the California Pine Region, Tech Bull 334, USDA Forest Service, Calif For and Res Exp Sta.

TABLE NAME: **COND**

COLUMN NAME: **SITE_CLASS_FIA**

CODED? **Yes**

BRIEF DESCRIPTION: **Site class for the condition class**

DEFINITION:

Site class is an estimate of productivity--the ability of the land to grow industrial wood. It is determined by evaluating the mean annual increment (MAI) in cubic-feet per acre (or other units of volume per area) per year, calculated from published equations. A site with a low MAI is classified as unproductive forest ('other forest'). Each site class consists of a range of MAI values.
This column contains the site class codes calculated by FIA procedures, they are not the same as Dunnings site class.

Please see the Technical Documentation for details on MAI and site class estimation.

TABLE NAME: COND

COLUMN NAME: **SITE_INDEX_DUNNINGS**

CODED? **No**

BRIEF DESCRIPTION: **Dunnings site Index for timberland conditions**

DEFINITION:

Site index calculated according to Dunnings methods, used exclusively in California.
The site index is estimated from the site class values as follows:

Dunnings site class	Site index
0	110
1	95
2	80
3	60
4	50
5	40

See reference:

Dunning, Duncan and L. H. Reineke. 1933. Preliminary Yield Tables for Second Growth Stands in the California Pine Region, Tech Bull 334, USDA Forest Service, Calif For and Res Exp Sta.

Walter J. Meerschaert , Ralph J. Warbington, Lee C. Wensel
1989. INCA Users Guide: The Inventory to CACTOS Conversion Program; Ag. Exp. Sta, Univ. of Calif., Div. of Ag. and Nat. Res., Research Note No. 25 --- need to confirm this reference

TABLE NAME: **COND**

COLUMN NAME: **SITE_INDEX_FIA**

CODED? **No**

BRIEF DESCRIPTION: **Site Index for the forest condition**

DEFINITION:

Site index of the condition class, calculated using FIA procedures and published site index equations. SI is a measure of forest productivity based on the average height of dominant and codominant trees at a specified age. A site index is generated for each site tree located in the TREE_SITE table. In FIA inventories, one species is chosen as the site species and the equation associated with that species is used to calculate site index. For R6 and BLMWO inventories, multiple species could have been chosen as site trees. A prioritized list of preferred species guided field crews. They were instructed to select trees on the plot, choosing a species highest on the list first. If multiple site species existed on R6 and BLMWO plots, the species that held the majority was chosen as the condition-level site species. The site index for the condition was the average of all site indexes calculated on trees of the same species.

This column is not available for R5 data. Dunnings site index is more commonly used in California.

R6 and BLMWO plots that had no site trees, had a site index assigned to the subplot and condition based on the plant association code recorded on the subplot. Please see the technical documentation for an explanation of site index and MAI calculations.

TABLE NAME: **COND**

COLUMN NAME: **SITE_INDEX_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **Site index estimation method**

DEFINITION:

The method used to either calculate or assign site index to the condition.

Site Index (SI) was calculated using equations appropriate for the species and geographic location. Calculation of SI was only possible on plots where site trees were measured and available in the database. (method=1)

Plots with NO Site Trees in the R6 and BLMWO inventories.
There were forested plots in the original inventory databases where site trees were not measured. This may be due to the lack of adequate site trees present (quality, size, form, species), the lack of any trees present on the plot, or because it was very low site and not considered timberland potential (thus no Site Trees were taken). For example, plots with a seedling/sapling stand size often had no site trees. For these plots and conditions, SI was assigned using information from a number of sources that allowed us to crosswalk plant association (PA) codes with SI estimates. The following sources were used:

-A crosswalk table (PA to SI) from the Forest Vegetation Simulator staff in Fort Collins (method 2);
-Average SI values from other plots or conditions in the IDB with site trees for the same or similar PA codes within the same FVS variant (method 3).
-Average SI values from other plots or conditions with similar PA codes (method 4).

Please see the Technical Documentation for details on site class estimation.

TABLE NAME: **COND**

COLUMN NAME: **SLIVER_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Indicates whether a condition class is a "sliver" .**

DEFINITION:

When a condition class is not associated with any subplot center (such as a road that crosses the outer portion of one subplot) it is called a sliver. In this situation, none of the small fixed radius plots are installed, significantly reducing the data collected for the condition class. Because of the limited information, on forested plots, field crews estimate the forest type, stand size class and stand age for this condition class. Note that stand position=0 on all trees because stocking is not needed for stand level classification on slivers.

The sliver code is null on proxy plots (PROXY_YN=Y).

Stocking estimates for trees (STK_TYPE1, STK_TYPE2, STK_TYPE3, STK_TYPE4) are null or zero on slivers. Stand position is zero on slivers.

All stand classifications come from the field.

This column is coded as Y or N, yes or no.
This column is only available for FIACA, FIAWO, FIAEO. All other inventories have a code of N.

TABLE NAME: **COND**

COLUMN NAME: **SLOPE**

CODED? **Yes**

BRIEF DESCRIPTION: **Average slope within the condition on the plot**

DEFINITION:

A percent slope recorded for each forest condition by estimating an average slope observed across all subplots in that condition.

The slope was coded as 10-percent class.

This column is not available for Region 6 and BLMWO data; instead it was recorded on each subplot only; it was not recorded at the condition class level.

TABLE NAME: **COND**

COLUMN NAME: **Snags_sampled_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Indicates that a condition was sampled for standing dead trees**

DEFINITION:

Identifies which forest conditions and plots were sampled for standing dead trees, often referred to as snags. Snags were sampled on most measured forest land with a SAMP_TYPE=1. As long as a forest land plot was part of the planned inventory sample, snags were tallied and measured, with the exception of access denied plots.

When analyzing or summarizing standing dead tree data (snags) in the IDB, select snags_sampled_YN=Y to get plots and conditions where these trees were intentionally sampled (measured). Plots or conditions that had no snags present, will still have a code of Y because the plot was visited and it was part of the inventory sample.

If the trees were tallied on the condition, they will be stored in the TREE_DEAD table.

TABLE NAME: **COND**

COLUMN NAME: **STAND_AGE**

CODED? **Yes**

BRIEF DESCRIPTION: **Age class of the forest stand.**

DEFINITION:

Stand age is based on the total age (not breast-high age) of trees in forest conditions. For FIA inventories, stand age is calculated by evaluating the relative amounts of stocking contained in 10-year age class groups. FIA includes live, non-cull, mainstand trees in the calculation. FIA evaluates the stocking within adjacent age classes to determine if the stand is even or uneven aged. If more than 70% of the stocking falls in 3 adjacent age groups the stand is classified as even aged, otherwise it is uneven aged. This is identified in the column (STAND_AGE_EVEN_YN).

For R5, F6, and BLMWO inventories, stand age is calculated by estimating a basal-area weighted age for the forested condition. Individual tree age is weighted by the tree's basal area/acre.
For each forest condition on the plot: STAND_AGE = sum (AGE_TTL * BA_FT2_AC) / sum (BA_FT2_AC)

This is only calculated when SAMP_TYPE= 1 or 2.

Age class codes represent 10-year classes.

TABLE NAME: **COND**

COLUMN NAME: **STAND_AGE_EVEN_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Indicates whether the stand is even or uneven aged.**

DEFINITION:

FIA evaluates the stocking within forest stands to determine if the stand is even or uneven aged. Stand age is determined by evaluating the relative amounts of stocking in each 10-year age class group. If more than 70% of the stocking falls in 3 adjacent age classes the stand is classified as even aged (Y), otherwise the stand is assumed to contain a variety of age classes and coded as uneven aged (N).

This field is available for FIA inventories only and when SAMP_TYPE= 1 or 2.

TABLE NAME: **COND**

COLUMN NAME: **STAND_SIZE_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Stand size class for the condition**

DEFINITION:

The forest condition is classified into a stand size based on the relative amount of stocking within four size classes. Size classes include seedling-saplings, poletimber, small sawtimber or large sawtimber.
All live trees growing in the mainstand (includes culls) are used in this calculation.
This is only calculated when SAMP_TYPE= 1 or 2.
If a stand is classified as a nonstocked forest type then the stand size = 6.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
COND	**STATE**	

BRIEF DESCRIPTION: **State where the plot is located**

DEFINITION:
A numeric code to identify the state where the plot is located. The states Oregon, California, and Washington are represented in this database.

TABLE NAME: **COND**

COLUMN NAME: **STOCKABLE_AREA_PROP**

CODED? **No**

BRIEF DESCRIPTION: **Proportion of stockable area within a condition**

DEFINITION:

Stockable area is an estimate of the physical area in the condition that is capable of growing forest trees. It is used to adjust estimates of productivity to account for areas on the plot where it is impossible to grow trees. Only recorded for forest conditions and when SAMP_TYPE= 1 or 2.

This column is available for all FIA inventories and the R5 inventory.

TABLE NAME: **COND**

COLUMN NAME: **STRATUM_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each stratum in the table. [Key Field]**

DEFINITION:

A unique number that identifies an individual stratum in the population.

If you are working with an AREA summary table, link the STRATUM_ID in the STRATUM table to the STRATUM_ID in the COND table.

If you are working with a VOLUME summary table, link the STRATUM_ID in the STRATUM table to the STRATUM_VOL_ID in the COND table.

TABLE NAME: **COND**

COLUMN NAME: **STRATUM_VOL_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each stratum in the table. [Key Field]**

DEFINITION:

A unique number that identifies an individual stratum in the population.

If you are working with an AREA summary table, link the STRATUM_ID in the STRATUM table to the STRATUM_ID in the PLOT table.

If you are working with a VOLUME summary table, link the STRATUM_ID in the STRATUM table to the STRATUM_VOL_ID in the PLOT table.

TABLE NAME: **COND**

COLUMN NAME: **SUBPLOT_COUNT_COND**

CODED? **No**

BRIEF DESCRIPTION: **Count of all subplots in the condition.**

DEFINITION:

A count of all subplots (whole or partial) that are in each condition class recorded on the plot. For R5, R6, and BLMWO inventories, only one condition exists on a subplot, so this column contains a count of whole subplots. For FIA inventories, more than one condition can be recorded on the subplot. In this case, this column is the sum of all the proportions of each subplot that are in each condition. For example, if .5 and 1.0 are the condition weights on the subplot, then the subplot count equals 1.5.

If PROXY=Y THEN COUNT=0
If GLC=60 (nonforest) and the entire plot is nonforest then the plot was classified on a photo and the COUNT=0.

TABLE NAME: **COND**

COLUMN NAME: **TREES_LIVE_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Indicates if live trees were tallied and present on the condition**

DEFINITION:

Indicates whether live trees were tallied and measured in a condition on the plot that was visited and installed in the field. If trees are present in the TREE_LIVE table, this column would be coded as Y.

This column is probably most useful to identify forest plots (SAMP_TYPE=1,2) that were visited but where no trees were detected or tallied. These 'no-tally' plots will have a row in the COND table but no rows in the TREE_LIVE table. However, they might have rows in the TREE_MORT table.

TABLE NAME: **COND**

COLUMN NAME: **TREES_MORT_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Indicates if mortality trees were tallied and present on the condition**

DEFINITION:

Indicates whether mortality (dead) trees were tallied and measured in a condition on the plot that was visited and installed in the field. If trees are present in the TREE_MORT table, this column would be coded as Y.

This column is probably most useful to identify forest plots (SAMP_TYPE=1,2) that were visited but where no dead, mortality trees were detected or tallied. These 'no-tally' plots will have a row in the COND table but no rows in the TREE_MORT table. However, they might have rows in the TREE_LIVE table.

TABLE NAME: COLUMN NAME: CODED? **No**

COND_EXTRA **ACRES_CNTY**

BRIEF DESCRIPTION: **Condition class acres, stratified at the county level for FIA. The number of acres the condition represents in the inventory.**

DEFINITION:
ACRES_CNTY is the number of acres this condition class plot represents in a county, and is the expansion factor to use when data are summarized and presented at the county level (compared to the survey unit level or state, which require ACRES).

This expansion factor was developed for FIA inventories only, for the specific purpose of analysis and summary of data county by county. Although the ACRES column is the primary expansion factor to use for most situations, it is based on a survey-unit (group of counties) stratification and can give misleading or even wrong estimates when analyzing data for an individual county. Note that the FIA inventories were designed at the survey-unit level, where standard error estimates have been minimized. Because of this, any summary at the county level generally will produce estimates with higher standard errors and will be less reliable. However, the ACRES_CNTY will help reduce this error and improve estimates at the county level.

ACRES_CNTY is derived by re-stratifying the primary and secondary samples, using county as the first level of stratification instead of survey unit. From this, an expansion factor is developed for the whole plot, which is then proportioned among all the individual condition classes mapped on the plot to arrive at the value for ACRES_CNTY.

For the National Forests and BLMWO:
Stratification by county is not available for these plots. Each plot has a county code recorded on it, which can be used to summarize data at the county level. Note that this will only provide a very general estimate with high standard errors likely. Caution should be used when analzying and interpreting county level summaries in these inventories. For ease of use, the data in the ACRES column is duplicated here in the ACRES_CNTY column.

For most counties, the total land area in the county matches the area reported in the 1990 Census Bureau report. However, because the IDB consists of many individual inventories, it was not possible to match land area figures for some counties. Please refer to the document "Adjusting Land Area to match Census Bureau reports" for an explanation of the differences.

Final Notes: This ACRES_CNTY column is only used to summarize land area. Do NOT use this column to expand the per-acre tree columns to estimate population totals (i.e. do not multiply ACRES_CNTY*volume/acre to get total volume). Use the ACRES_CNTY_VOL column to make this calculation.

Exception:
In the inventory of hardwood woodlands (often referred to as oak woodlands) conducted by FIA in California, trees were only measured on a partial sample of all woodland (GLC=44) plots. The sampling grid density for the oak woodland inventory was about 4.8 miles compared to a 3.4 mile grid for the standard inventory. Because of this, there were an insufficient number of plots sampled in each county, so a county stratification was not conducted for this subsample. The ACRES_CNTY column can be used to sumarize general information about the oak woodland land class, but no county level estimates of area or volume can be created for the oak woodland subsample.

Please refer to the Technical Documentation or the user guide for details on area calculations.

See these column definitions for more details:
ACRES_CNTY_VOL
COND_WT
COND_CLASS

TABLE NAME: COLUMN NAME: CODED? **No**

COND_EXTRA **ACRES_CNTY_VOL**

BRIEF DESCRIPTION: **Area expansion factor (stratified at the county level for FIA) to expand per-acre estimates for a tree.**

DEFINITION:
An area expansion factor used specifically to expand per-acre tree attributes such as the volume/acre, biomass/acre, or trees/acre estimates to derive a value for population totals within the county area. When a per-acre estimate such as volume/acre or biomass/acre is multiplied by ACRES_CNTY_VOL, the result is an estimate of the total volume or total biomass that the tree represents within the inventory. This is the expansion factor to use when data are summarized and presented at the county level (compared to the survey unit level or state, which require ACRES_VOL).

ACRES_CNTY_VOL often equals ACRES. When these columns are different, it indicates that a different stratification scheme or sampling design was used to provide a more accurate estimate of tree volume, biomass, or other attribute. The result is a different area expansion factor for tree attributes.

This expansion factor was developed for FIA inventories only, for the specific purpose of analysis and summary of data county by county. Although the ACRES_VOL column is the primary expansion factor to use for most situations, it is based on a survey-unit (group of counties) stratification and can give misleading or even wrong estimates when analyzing data for an individual county. Note that the FIA inventories were designed at the survey-unit level, where standard error estimates have been minimized. Because of this, any summary at the county level generally will produce estimates with higher standard errors and will be less reliable. However, the ACRES_VOL_CNTY will help reduce this error and improve estimates at the county level.

ACRES_VOL_CNTY is derived by re-stratifying the primary and secondary samples, using county as the first level of stratification instead of survey unit. From this, an expansion factor is developed for the whole plot, which is then proportioned among all the individual condition classes mapped on the plot to arrive at the value for ACRES_VOL_CNTY.

This ACRES_CNTY_VOL column is ONLY used to expand the per-acre tree columns to estimate county totals (i.e. do not use ACRES_CNTY_VOL to summarize land area). Use the ACRES_CNTY column to calculate and summarize the number of acres within a category of interest, such as Timberland area by forest type and stand size.

To estimate a population total for a county, follow this example:
Tree attribute=attribute/acre * ACRES_CNTY_VOL

For the National Forests and BLMWO:
Stratification by county is not available for these plots. Each plot has a county code recorded on it, which can be used to summarize data at the county level. Note that this will only provide a very general estimate with high standard errors likely. Caution should be used when analzying and interpreting county level summaries in these inventories. For ease of use, the data in the ACRES_VOL column is duplicated here in the ACRES_VOL_CNTY column.

For most counties, the total land area in the county matches the area reported in the 1990 Census Bureau report. However, because the IDB consists of many individual inventories, it was not possible to match land area figures for some counties. Please refer to the document

"Adjusting Land Area to match Census Bureau reports" for an explanation of the differences.

Exception:
In the inventory of hardwood woodlands (often referred to as oak woodlands) conducted by FIA in California, trees were only measured on a partial sample of all woodland (GLC=44) plots. The sampling grid density for the oak woodland inventory was about 4.8 miles compared to a 3.4 mile grid for the standard inventory. Because of this, there were an insufficient number of plots sampled in each county, so a county stratification was not conducted for this subsample. No county level estimates of volume can be created for the oak woodland subsample.

Please refer to the Technical Documentation or the user guide for details on area calculations.

See these column definitions for more details:
ACRES_CNTY_VOL
COND_WT
COND_CLASS

TABLE NAME: **COND_EXTRA**

COLUMN NAME: **COND_ID**

CODED? **No**

BRIEF DESCRIPTION: **Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Condition Class (COND) table. ID is a key field, used to join all other tables in the database except the PLOT table.

TABLE NAME: COLUMN NAME: CODED? **Yes**

COND_EXTRA **DATA_SOURCE**

BRIEF DESCRIPTION: **Identifies the source of the inventory data.**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from nine different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by five individual forest inventory programs from two agencies, including the Forest Inventory and Analysis program of the Pacific Northwest Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, the Natural Resource Inventory program of the Bureau of Land Management in western Oregon and the Interior West Forest Inventory and Analysis Program of the Rocky Mountain Research Station. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Rocky Mountain Research Station's Interior West FIA unit inventoried small pieces of Washington (Kaniksu NF) and California (Toiyabe NF) and are coded RMRS.

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **BIOM_AC_LBS**

CODED? **No**

BRIEF DESCRIPTION: **Biomass (oven-dry weight) of the down log, in lbs/acre**

DEFINITION:
The biomass of the down log is the oven-dry weight of the down log, in lbs/acre.

BIOM_WOOD_DENS is in pounds per cubic foot

BIOM_AC_LBS = VOL_FT3_AC * BIOM_WOOD_DENS * DCR_DWD

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **BIOM_HA_KG**

CODED? **No**

BRIEF DESCRIPTION: **Biomass (oven-dry weight) of the down log, in kg/ha**

DEFINITION:
The biomass of the down log is the oven-dry weight of the down log, in kg/ha.

BIOM_WOOD_SPEC_GRAV has no units.
The 1000 in the equation is 1000 kg/m3

BIOM_HA_KG = VOL_M3_HA * 1000 * BIOM_WOOD_SPEC_GRAV * DCR_DWD

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **BIOM_LOG_KG**

CODED? **No**

BRIEF DESCRIPTION: **Biomass (oven-dry weight) of the individual down log, in kilograms**

DEFINITION:

The biomass of the individual down log is the oven-dry weight of the down log, in kg. This column has not been expanded to the per-acre level.

BIOM_WOOD_SPEC_GRAV has no units.
The 1000 in the equation is 1000 kg/m3

BIOM_LOG_KG = VOL_LOG_M3 * 1000 * BIOM_WOOD_SPEC_GRAV * DCR_DWD

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **BIOM_LOG_LBS**

CODED? **No**

BRIEF DESCRIPTION: **Biomass (oven-dry weight) of the individual down log, in pounds**

DEFINITION:

The biomass of the individual down log is the oven-dry weight of the down log, in pounds. This column has not been expanded to the per-acre level.

BIOM_WOOD_DENS is in pounds per cubic foot
BIOM_LOG_LBS = VOL_LOG_FT3 * BIOM_WOOD_DENS * DCR_DWD

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **BIOM_WOOD_DENS**

CODED? **No**

BRIEF DESCRIPTION: **Density of wood for a species, in pounds/cubic foot.**

DEFINITION:

Wood density is a factor used to convert tree volume to biomass. It is an estimate of the oven dry weight (in pounds) of wood fiber per cubic foot of tree volume.

Wood density is calculated from the specific gravity of the wood and the weight of water as follows:
BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3
where 62.4 is the weight of water, and BIOM_WOOD_SPEC_GRAV = the specific gravity of the wood for a given species.

Specific gravity is the ovendry weight of a piece of green wood divided by the weight of water displaced by the wood. Specific gravity has no units.

Values for specific gravity for most species were obtained from the Wood Handbook: Wood as an Engineering Material, Forest Products Laboratory, Agriculture Handbook #72, 1987, Table 4-2. Species that were not listed in this Handbook were assigned a specific gravity from a similar species.

Biomass is estimated by multiplying the wood density by the cubic volume of the down log, which results in the ovendry weight in pounds of wood fiber. This weight can then be easily converted to tons by multiplying by .0005 tons/lb or to kilograms by .4536 kg/lb.

If the down log has a decay class of 2-5, the biomass will be reduced to reflect an estimate of decomposition over time. Please see the column DCR_DWD for information on the decay class reduction factor.

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **BIOM_WOOD_SPEC_GRAV**

CODED? **No**

BRIEF DESCRIPTION: **Specific gravity of wood for a given species**

DEFINITION:

Specific gravity is the ovendry weight of a piece of green wood divided by the weight of water displaced by the wood. It is used to calculate wood density which in turn is used to estimate the biomass of the tree bole. Specific gravity has no units.

Values for specific gravity for most species were obtained from the Wood Handbook: Wood as an Engineering Material, Forest Products Laboratory, Agriculture Handbook #72, 1987, Table 4-2. Species that were not listed in this Handbook were assigned a specific gravity from a similar species.

Specific gravity is used to estimate wood density as follows:

BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3
where 62.4 is the weight of water.

Biomass is estimated by multiplying the wood density by the cubic volume of the down log, which results in the ovendry weight in pounds of wood fiber. This weight can then be easily converted to tons by multiplying by .0005 tons/lb or to kilograms by .4536 kg/lb.

See these column definitions for more details:
BIOM_WOOD_DENS

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species. Also refer to "TREE SPECIES AND SPECIFIC GRAVITY.doc" in the Technical Documentation folder on the CD.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **CARBFAC**

CODED? **No**

BRIEF DESCRIPTION: **Carbon conversion factor**

DEFINITION:

This factor is used to convert a biomass estimate to an estimate of carbon. CARBFAC was taken from the literature and is used to convert softwoods, hardwoods, and unknown species as follows:

For Softwoods: CARBFAC= .521;
For Hardwoods: CARBFAC= .491;
For unknowns: CARBFAC= .506;

To calculate carbon per unit area, multiply biomass times the carbon factor.
CARBON_AC_LBS = BIOM_AC_LBS * CARBFAC
CARBON_HA_KG = BIOM_HA_KG * CARBFAC

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **CARBON_AC_LBS**

CODED? **no**

BRIEF DESCRIPTION: **The amount of carbon per acre the down wood represents, in pounds/ac**

DEFINITION:

The weight of carbon/acre represented by the down log. It is an estimate of how much carbon is stored in down wood on a per-acre basis. Biomass per acre and the carbon conversion factor are used to calculate this variable.

CARBON_AC_LBS = BIOM_AC_LBS * CARBFAC

Each piece of down wood has an estimate calculated for it, which should be summed to the condition or plot level (within categories such as decay class or species) before use. A weighted mean can then be estimated across conditions or it can be expanded by the condition class acres (ACRES_VOL) for a population estimate.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **CARBON_HA_KG**

CODED? **No**

BRIEF DESCRIPTION: **The amount of carbon per hectare the down wood represents, in kg/ha**

DEFINITION:

The weight of carbon/hectare represented by the down log. It is an estimate of how much carbon is stored in down wood on a per-hectare basis. Biomass per hectare and the carbon conversion factor are used to calculate this variable.

CARBON_HA_KG = BIOM_HA_KG * CARBFAC

Each piece of down wood has an estimate calculated for it, which should be summed to the condition or plot level (within categories such as decay class or species) before use. A weighted mean can then be estimated across conditions or it can be expanded by the condition class acres (ACRES_VOL) for a population estimate.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **CNTY**

CODED? **Yes**

BRIEF DESCRIPTION: **County code**

DEFINITION:

A numeric code which identifies the county where the field plot is located. County codes are unique within a state. See the code definitions for a list of counties and their text names. Use the table IDB_COUNTY_NAMES to use names of counties in queries.

CNTY should not be used to link tables. Use COND_ID which is a unique identifier

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **COND_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Condition class code**

DEFINITION:

A numeric code that identifies an individual condition class on a plot. Condition classes are defined by differences in land class (forest, non-forest), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), owner, or other situations that occur across the plot area. The condition in the center of subplot 1 is recorded as condition class #1 in most inventories, and the rest of the conditions are numbered sequentially as they are encountered on the subplot or plot. Because plots are installed in specific locations and each subplot is installed in fixed positions, it is possible for subplots to straddle condition boundaries. When this occurs, the boundaries are mapped and specific details are recorded for each condition. The condition class code is recorded with every piece of information associated with that particular condition. At the data compilation level, if more than one condition exists, the plot is effectively partitioned into "condition class plots" resulting in more than one record for each plot. Classifications and summaries are made at the condition class level, where data collected within each condition class are essentially considered and treated as a plot.

Because the IDB consists of data from a variety of inventory designs, condition class assignments were handled in slightly different ways. In the FIACA, FIAEO, and FIAWO inventories, multiple conditions were recorded in the field on each subplot (if present). In the FIAEW, FIAWW, R5, R6, and BLM inventories, only one condition class was identified on each subplot (the entire subplot area was assigned the same condition number).

The Region 6 and BLMWO inventories did not record condition classes in the field, so the IDB staff developed a procedure to identify broad condition classes in the office. The procedure was based on information contained in the plant association code, which field crews recorded on each subplot. Please refer to the Technical Documentation for a detailed description of the condition class procedure. In general, the Series codes (1st 2 letters in the plant association code) were evaluated to determine whether the subplot was forest or non-forest. All non-forest Series were lumped into one condition class with a ground land class (see GLC definition) code of 60. Forest plant associations were further divided into softwood or hardwood forests, and finally assigned a condition class based on the 2nd letter of the Series code which identifies the dominant potential vegetation (species). Using this algorithm, we were able to assign a condition class code to each subplot.

The Region 5 inventory recorded condition classes in the field and were based on differences in land class or broad differences in forest type, stand size, stand origin or stand density. R5 staff provided condition class codes for the IDB.

The PNW-FIA inventories identified condition classes in the field. Conditions were defined as a distinct land class (timberland, oak woodland, nonforest, etc), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), or an area that was out of the sampled inventory area (i.e. outside the state or in a reserved area). Subplots that straddle condition class boundaries were mapped and a proportion was estimated for the amount of the subplot area within each condition. The condition identified at the center of subplot #1 was always labeled as condition class '1'. When a condition class was not associated with any subplot center (such as a road that crosses the outer portion of one subplot) it is called a "sliver". To classify an area as a different condition based on the vegetation composition (forest stand), the area must be at least 2.5 ha in size and at least

35m wide. These conditions are often associated with changes in physioclass such as: (a) steep north slope vs. steep south slope; (b) swampy flat vs. well-drained upland; or (c) deep-soiled flat vs. thin-soiled upland. In addition, a new condition would be recorded when crossing the boundary between pure hardwood to pure softwood, from regeneration to sawtimber stands, poorly stocked to well-stocked stands, or from uncut to partially harvested areas. To classify an area as a different condition based on the land class, the area on the subplot must be at least .4 hectares in size and 35 meters wide.

TABLE NAME:	COLUMN NAME:	CODED? **No**
DOWN_WOOD	**COND_ID**	

BRIEF DESCRIPTION: **Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Condition Class (COND) table. COND_ID is a key field, used to join the DOWN_WOOD table to the COND table.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DATA_SOURCE**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies the source of the inventory data.**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from nine different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by five individual forest inventory programs from two agencies, including the Forest Inventory and Analysis program of the Pacific Northwest Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, the Natural Resource Inventory program of the Bureau of Land Management in western Oregon and the Interior West Forest Inventory and Analysis Program of the Rocky Mountain Research Station. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Rocky Mountain Research Station's Interior West FIA unit inventoried small pieces of Washington (Kaniksu NF) and California (Toiyabe NF) and are coded RMRS.

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DCR_DWD**

CODED? **No**

BRIEF DESCRIPTION: **Decay class reduction factor**

DEFINITION:

This factor is used to reduce the biomass of down wood in decay classes 2,3,4, and 5. The specific gravity of wood decreases as a log decays, which reduces the weight of a log as it decomposes from a solid intact bole (decay class 1) to a rotten, heavily decayed stage (decay class 5).

This calculation has been applied to all biomass estimates in the IDB. In general, calculate the estimate as follows: Biomass estimate * DCR = adjusted weight of the down log.

The DCR varies by decay class and broad species group. Note that the decay classes recorded in the field are used to assign a DCR to a log. Please see the DECAY and DECAY_ORIG definitions for more information.

For FIA, R5, and BLM:

```
IF DECAY_ORIG=1 AND TREE_SPECIES_GROUP="HW"  THEN DCR_DWD=1.0;
IF DECAY_ORIG=1 AND TREE_SPECIES_GROUP="SW"  THEN DCR_DWD=1.0;
IF DECAY_ORIG=1 AND TREE_SPECIES_GROUP="UNK" THEN DCR_DWD=1.0;

IF DECAY_ORIG=2 AND TREE_SPECIES_GROUP="HW"  THEN DCR_DWD=.78;
IF DECAY_ORIG=2 AND TREE_SPECIES_GROUP="SW"  THEN DCR_DWD=.84;
IF DECAY_ORIG=2 AND TREE_SPECIES_GROUP="UNK" THEN DCR_DWD=.81;

IF DECAY_ORIG=3 AND TREE_SPECIES_GROUP="HW"  THEN DCR_DWD=.45;
IF DECAY_ORIG=3 AND TREE_SPECIES_GROUP="SW"  THEN DCR_DWD=.71;
IF DECAY_ORIG=3 AND TREE_SPECIES_GROUP="UNK" THEN DCR_DWD=.58;

IF DECAY_ORIG IN (4,5) AND TREE_SPECIES_GROUP="HW" THEN  DCR_DWD=.42;
IF DECAY_ORIG IN (4,5) AND TREE_SPECIES_GROUP="SW" THEN  DCR_DWD=.45;
IF DECAY_ORIG IN (4,5) AND TREE_SPECIES_GROUP="UNK" THEN DCR_DWD=.44;
```

For Region 6:

```
IF  DECAY_ORIG=1 AND TREE_SPECIES_GROUP="HW" THEN  DCR_DWD=.89;
IF  DECAY_ORIG=1 AND TREE_SPECIES_GROUP="SW" THEN  DCR_DWD=.92;
IF  DECAY_ORIG=1 AND TREE_SPECIES_GROUP="UNK" THEN DCR_DWD=.91;

IF  DECAY_ORIG=2 AND TREE_SPECIES_GROUP="HW" THEN  DCR_DWD=.45;
IF  DECAY_ORIG=2 AND TREE_SPECIES_GROUP="SW" THEN  DCR_DWD=.71;
IF  DECAY_ORIG=2 AND TREE_SPECIES_GROUP="UNK" THEN DCR_DWD=.58;

IF  DECAY_ORIG=3 AND TREE_SPECIES_GROUP="HW" THEN  DCR_DWD=.42;
IF  DECAY_ORIG=3 AND TREE_SPECIES_GROUP="SW" THEN  DCR_DWD=.45;
IF  DECAY_ORIG=3 AND TREE_SPECIES_GROUP="UNK" THEN DCR_DWD=.44;
```

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DECAY**

CODED? **Yes**

BRIEF DESCRIPTION: **The decay class of the down wood, using a 3-class system**

DEFINITION:

This column identifies the stage of decay for each piece of down wood, using a 3-class system.
This decay class was recorded in the field for Region 6 inventories. The column was calculated in the office for all other Data_Sources (BLMWO, R5, FIACA, FIAEO, FIAWO, FIAEW) because a 5-class system was used in these inventories. The original decay class code from the 5-class system was preserved in the DECAY_orig column.

For analysis, a decay class code is needed which is common to all inventories. To do this, DECAY_orig was recoded to a 3-class system and stored in the column DECAY as follows:

If DATA_SOURCE=R6, then DECAY=DECAY_orig;
For all other data sources:
If DECAY_orig = 1 or 2, then DECAY = 1
If DECAY_orig = 3, then DECAY = 2
If DECAY_orig = 4 or 5, then DECAY = 3

Decay class 1: Bark intact; Limbs present; Texture mostly sound; Shape is round; Wood color is close to original color;
Decay class 2: Bark loose or missing; Limbs mostly present; Texture sapwood decay present; Shape is round; Wood color is close to original color or slightly faded;
Decay class 3: Bark usually absent; Limbs are now branch stubs; Texture interior decay present; Shape is round to oval; Wood color is faded.

For more information refer to the technical document: "Down Wood Decay Class codes.doc" in the Technical Documentation folder on the CD.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DECAY_orig**

CODED? **Yes**

BRIEF DESCRIPTION: **The original decay class recorded in the field**

DEFINITION:

This column contains the decay class originally recorded on down wood in the field for all inventories. For the Region 6 inventory DECAY_orig is the same as DECAY; a 3-class system is used. Please refer to the definition for DECAY for a description of the 3-class system

All other Data_Sources (BLMWO, R5, FIACA, FIAEO, FIAWO, FIAEW) used a 5-class rating system in the field. For FIA inventories, decay class 5 logs were not tallied because of the difficulty in measuring heavily decomposed wood.

The 5-class system (modified from Cline et.al. 1980) has the following brief descriptions:

Decay class 1
Structural integrity: Sound ; Wood Texture: Intact, no rot;Conks on stem absent; Wood Color: original color; Presence of invading roots: absent; Condition of branches & twigs:If branches are present, fine twigs are still attached with tight bark.

Decay class 2
Structural integrity: Heartwood sound; Sapwood somewhat decayed ; Wood Texture: Mostly intact; Sapwood partly soft and starting to decay. Wood cannot be pulled apart by hand; Wood Color: original color; Presence of invading roots: absent; Condition of branches & twigs: If branches are present, many fine twigs are gone. Fine twigs still present have peeling bark.

Decay class 3
Structural integrity: Heartwood sound; log supports its weight; Wood Texture: Large, hard pieces sapwood can be pulled apart by hand; Wood Color:red-brown or original color; Presence of invading roots: present in sapwood only; Condition of branches & twigs: Large branch stubs will not pull out.

Decay class 4
Structural integrity: Heartwood rotten; log does not support its weight, but shape is maintained; Wood Texture: Soft, small, blocky pieces; metal pin can push apart heartwood; Wood Color: red-brown or light brown; Presence of invading roots: present throughout log; Condition of branches & twigs: Large branch stubs pull out easily.

Decay class 5
Structural integrity: None; branch stubs and pitch pockets have rotted away; Wood Texture: Soft; powdery when dry; Wood Color: Red-brown to dark brown; Presence of invading roots: roots through-out; Condition of branches & twigs:none.

For more information refer to the technical document: "Down Wood Decay Class codes.doc" in the Technical Documentation folder on the CD.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DIAM_I_CM**

CODED? **No**

BRIEF DESCRIPTION: **Diameter of the down log at the point of intersection, in cm**

DEFINITION:

Diameter of the down log, in centimeters, at the point where the transect intersects the log. This diameter can be anywhere along the length of the log and is not necessarily at the midpoint.

Not all inventories measured this diameter. FIA, Region 6 and BLM inventories used the line intersect transect method of sampling down wood and recorded an intersect diameter. Region 5 used a rectangular plot to sample down wood and only recorded a large-end diameter.

Note that the intersect diameter can be larger or smaller than the large-end or small-end diameters, respectively. It depends on the condition of the log in terms of the stage of decay at the point of intersection with the transect, compared to the stage of decay at either end of the log.

For FIA the intersect diameter had to be >= 12.5cm (5") before the log qualified as a tally log; for the R6 and BLMWO inventories, this diameter had to >= 3" before being recorded. If these minimum diameter specifications were not met, the log was not tallied in the inventory. For more information please read "Down Wood inventories in the IDB.doc" in the technical documentation directory on the CD.

Region 6 and BLM measured diameters in English units, which were converted to centimeters in the office. All FIA measurements were taken in metric and converted to English in the office.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DIAM_I_IN**

CODED? **No**

BRIEF DESCRIPTION: **Diameter of the down log at the point of intersection, in inches**

DEFINITION:

Diameter of the down log, in inches, at the point where the transect intersects the log. This diameter can be anywhere along the length of the log and is not necessarily at the midpoint.

Not all inventories measured this diameter. FIA, Region 6 and BLM inventories used the line intersect transect method of sampling down wood and recorded an intersect diameter. Region 5 used a rectangular plot to sample down wood and only recorded a large-end diameter.

Note that the intersect diameter can be larger or smaller than the large-end or small-end diameters, respectively. It depends on the condition of the log in terms of the stage of decay at the point of intersection with the transect, compared to the stage of decay at either end of the log.

For FIA the intersect diameter had to be >= 12.5cm (5") before the log qualified as a tally log; for the R6 and BLMWO inventories, this diameter had to >= 3" before being recorded. If these minimum diameter specifications were not met, the log was not tallied in the inventory. For more information please read "Down Wood inventories in the IDB.doc" in the technical documentation directory on the CD.

Region 6 and BLM measured diameters in English units, which were converted to centimeters in the office. All FIA measurements were taken in metric and converted to English in the office.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DIAM_L_CM**

CODED? **No**

BRIEF DESCRIPTION: **Diameter of the down log at the large end, in cm**

DEFINITION:

Diameter of the down log, in centimeters, at the largest end of the log.

All inventories measured this diameter.

Region 6 and BLM measured diameters in English units, which were converted to centimeters in the office. All FIA measurements were taken in metric and converted to English in the office.

It is common, when summarizing or analyzing down wood data, to sort, group, or select data based on the large-end diameter. This is the diameter that allows for meaningful comparisons among groups -- for example among habitat types or forest types. Generally, a summary table will be labeled with the minimum large-end diameter that was used to create the table. The large-end diameter is useful to relate the down wood population with characteristics or attributes of standing live trees.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DIAM_L_IN**

CODED? **No**

BRIEF DESCRIPTION: **Diameter of the down log at the large end, in inches**

DEFINITION:

Diameter of the down log, in inches, at the largest end of the log.

All inventories measured this diameter.

Region 6 and BLM measured diameters in English units, which were converted to centimeters in the office. All FIA measurements were taken in metric and converted to English in the office.

It is common, when summarizing or analyzing down wood data, to sort, group, or select data based on the large-end diameter. This is the diameter that allows for meaningful comparisons among groups -- for example among habitat types or forest types. Generally, a summary table will be labeled with the minimum large-end diameter that was used to create the table. The large-end diameter is useful to relate the down wood population with characteristics or attributes of standing live trees.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DIAM_S_CM**

CODED? **No**

BRIEF DESCRIPTION: **Diameter of the down log at the small end, in cm**

DEFINITION:

Diameter of the down log, in centimeters, at the smallest end of the log.

Not all inventories measured this diameter. FIA measured the small end diameter in the field; R5 estimated the small end diameter in the office using a taper function; and both Region 6 and BLMWO did not measure or estimate the small end diameter. This affects the type of volume equation used to estimate down wood volume for the individual log. See the volume definitions for more information.

Region 6 and BLM measured diameters in English units, which were converted to centimeters in the office. All FIA measurements were taken in metric and converted to English in the office.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DIAM_S_IN**

CODED? **No**

BRIEF DESCRIPTION: **Diameter of the down log at the small end, in inches**

DEFINITION:

Diameter of the down log, in inches, at the smallest end of the log.

Not all inventories measured this diameter. FIA measured the small end diameter in the field; R5 estimated the small end diameter in the office using a taper function; and both Region 6 and BLMWO did not measure or estimate the small end diameter. This affects the type of volume equation used to estimate down wood volume for the individual log. See the volume definitions for more information.

Region 6 and BLM measured diameters in English units, which were converted to centimeters in the office. All FIA measurements were taken in metric and converted to English in the office.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **DOWN_WOOD_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each row in the DOWN_WOOD table.**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Down Wood table.

Every piece of down wood is identified by the plot, condition, subplot, and transect number where the piece was recorded.

For more information about down wood calculations and sampling techniques refer to the technical document: "Down Wood Inventories in the IDB.doc" in the Technical Documentation folder on the CD.

Down wood data was either not collected or not available for the Data Source=RMRS, which includes the Kaniksu NF and Toiyabe NF.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **FIA_LINENUM**

CODED? **No**

BRIEF DESCRIPTION: **Unique number for each line or record of an FIA plot**

DEFINITION:

This line number was taken directly from the original FIA databases, allowing users to connect back to these databases if necessary. Each piece of down wood recorded on a plot has a unique line number on that plot. If a transect had no down wood present and recorded, then a 'no-tally' line was entered with a diameter and length of zero.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **FOREST_OR_BLM_DISTRICT**

CODED? **Yes**

BRIEF DESCRIPTION: **Administrative National Forest code**

DEFINITION:

A numeric code for the National Forest or BLM district where the field plot is located. Region 5 has 18 individual National Forests, Region 6 has 19 National Forests, and the BLM has 6 districts in western Oregon. Inventories are generally organized and compiled by Forest or BLM district. In addition there is one forest in Region 1 in Washington and one forest in Region 4 in California.

The FOREST_OR_BLM_DISTRICT code combined with CNTY and PLOT (plot number) uniquely identify each plot location in the R5 data source. For R6 and BLMWO as well as RMRS data sources the plot number is unique. However, it is recommended that the plot ID column in this table be used to uniquely identify every plot in the database, because FIA inventories require state and county along with plot number to be unique. The PLOT_ID column gets rid of the need to include multiple columns to uniquely identify a plot.

The FOREST_OR_BLM_DISTRICT column is blank for FIA inventories.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **LINEAR_FEET_AC**

CODED? **No**

BRIEF DESCRIPTION: **The amount of linear feet per acre the log represents**

DEFINITION:
This variable is used by biologists to relate the amount of down wood to wildlife habitat, in terms of travel corridors and abundance of material on the ground.

LINEAR_FEET_AC = LOG_LENGTH_FT * LOGS_AC

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **LINEAR_METERS_HA**

CODED? **No**

BRIEF DESCRIPTION: **The amount of linear meters per hectare the log represents**

DEFINITION:
This variable is used by biologists to relate the amount of down wood to wildlife habitat, in terms of travel corridors and abundance of material on the ground. T

LINEAR_METERS_HA = LOG_LENGTH_M * LOGS_HA

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **LOG_AC**

CODED? **No**

BRIEF DESCRIPTION: **Number of logs per acre**

DEFINITION:

The density of down wood on a condition on the plot, in terms of the number of logs/acre represented by each piece. The calculation of logs/acre varies by data source.

For Region 5 inventories: the sample design is a 1/8th acre rectangular plot, where all logs are measured that fall within the plot boundaries. Partial logs are tallied if the large end is inside the plot boundary. Each log represents 8 logs/acre at the subplot level (LPA_SUBPLOT). To estimate logs per acre at the condition level, the LPA_SUBPLOT must be averaged across the subplots as follows: LOG_AC = LPA_SUBPLOT/ SUBPLOT_COUNT_COND.

For Region 6, BLM, and FIA the LOGS_AC is calculated from transect data:

LOGS_AC = (3.1416/(2*TL_COND_HD_FT) * (1 /LOG_LENGTH_FT)) * (43560)

For more information please refer to papers in the Technical Documentation folder on the CD called "CWD_Calculation_Methods_Ecological Indicators paper.pdf" and "Down Wood inventories in the IDB.doc".

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **LOG_HA**

CODED? **No**

BRIEF DESCRIPTION: **Number of logs per hectare**

DEFINITION:

The density of down wood on a condition on the plot, in terms of the number of logs/hectare represented by each piece. The calculation of logs/hectare varies by data source.

For Region 5 inventories: the sample design is a 1/8th acre rectangular plot, where all logs are measured that fall within the plot boundaries. Partial logs are tallied if the large end is inside the plot boundary. Each log represents 20 logs/ha at the subplot level (LPH_SUBPLOT). To estimate logs per hectare at the condition level, the LPH_SUBPLOT must be averaged across the subplots as follows: LOG_HA = LPH_SUBPLOT/ SUBPLOT_COUNT_COND

For Region 6, BLM, and FIA the LOGS_HA is calculated from transect data:

LOGS_HA = (3.1416/(2*TL_COND_HD_M) * (1 /LOG_LENGTH_M)) * (10000)

For more information please refer to papers in the Technical Documentation folder on the CD called "CWD_Calculation_Methods_Ecological Indicators paper.pdf" and "Down Wood inventories in the IDB.doc".

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **LOG_LENGTH_FT**

CODED? **No**

BRIEF DESCRIPTION: **Length of the log in feet**

DEFINITION:

The length of the down log, in feet. This measurement was taken between 2 points, which varied by inventory.

For FIA inventories, log length was measured between the locations set up to record large end and small end diameters, which are not necessarily the physical ends of the log. The small end diameter is either the point where the diameter reaches 12.5cm or if the end of the log is >= 12.5cm, then length is measured to the end of the log. The same concept is true for the large end: if the log still has a root system attached, then the diameter is taken just above the root collar, which is also the point where the length measurement ends. If the large end is the physical end of the log, then the length is measured to this point.

For R6 and BLMWO, the length of the tally piece is measured between points of abrupt physical change or discontinuity or to the point where the diamter is 1" outside diameter.

For R5, the length of the entire log is measured.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **LOG_LENGTH_M**

CODED? **No**

BRIEF DESCRIPTION: **Length of the log in meters**

DEFINITION:

The length of the down log, in meters. This measurement was taken between 2 points, which varied by inventory.

For FIA inventories, log length was measured between the locations set up to record large end and small end diameters, which are not necessarily the physical ends of the log. The small end diameter is either the point where the diameter reaches 12.5cm or if the end of the log is >= 12.5cm, then length is measured to the end of the log. The same concept is true for the large end: if the log still has a root system attached, then the diameter is taken just above the root collar, which is also the point where the length measurement ends. If the large end is the physical end of the log, then the length is measured to this point.

For R6 and BLMWO, the length of the tally piece is measured between points of abrupt physical change or discontinuity or to the point where the diamter is 1" outside diameter.

For R5, the length of the entire log is measured.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **LPA_SUBPLOT_R5**

CODED? **No**

BRIEF DESCRIPTION: **Number of logs per acre at the subplot level, R5 only**

DEFINITION:

The number of logs per acre that each individual piece of down wood represents on the subplot. LPA_SUBPLOT has not been yet been averaged across the subplots. This column is only calculated for Region 5 inventories. The sample design in this inventory is a 1/8th acre rectangular plot, where all logs are measured that fall within the plot boundaries. Partial logs are tallied if the large end is inside the plot boundary.
Each log represents 8 logs/acre at the subplot level.

This column is used to estimate logs per acre at the condition level as follows:
LOG_AC = LPA_SUBPLOT/ SUBPLOT_COUNT_COND

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **LPH_SUBPLOT_R5**

CODED? **No**

BRIEF DESCRIPTION: **Number of logs per hectare at the subplot level, R5 only**

DEFINITION:

The number of logs per hectare that each individual piece of down wood represents on the subplot. LPH_SUBPLOT has not been yet been averaged across the subplots. This column is only calculated for Region 5 inventories. The sample design in this inventory is a 1/8th acre rectangular plot, where all logs are measured that fall within the plot boundaries. Partial logs are tallied if the large end is inside the plot boundary.
Each log represents 20 logs/ha at the subplot level.

This column is used to estimate logs per hectare at the condition level as follows:
LOGS_HA = LPH_SUBPLOT/ SUBPLOT_COUNT_COND

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **PERCENT_COVER_EST**

CODED? **No**

BRIEF DESCRIPTION: **An estimate of percent cover the log represents**

DEFINITION:

This is an estimate of the percent of the area within the condition that is covered by an individual piece of down wood.
For all inventories except R5, this estimate is based on measurements taken on a transect, including the diameter(s) and the length of the transect in the condition.

PERCENT_COVER_EST = DIAM_I_CM * (.5 * 3.1416)/TL_COND_HD_M
or
PERCENT_COVER_EST = ((DIAM_S_CM + DIAM_L_CM) * (.25 * 3.1416))/TL_COND_HD_M

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **PLOT**

CODED? **No**

BRIEF DESCRIPTION: **Original plot number**

DEFINITION:

The original numeric code that identified the individual field plot location for a given inventory (data source). This is the number used by field crews and office staff to identify all materials and information for that plot while compiling and executing the inventory. Some plot numbers are unique within a Forest and others are unique in the entire regional inventory. In FIA inventories most plot numbers are unique within a state and county.

Because of this variability in uniqueness from the many data sources in this database, it is recommended that the column PLOT_ID be used to uniquely identify every plot location in this database. ID is unique across all data sources and all inventories.

The column PLOT is useful to link to other databases that only contain the original plot number as an identifier.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **PLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each plot row in the entire PLOT table, [Key field]**

DEFINITION:

A sequential number which uniquely identifies each plot (row) in the entire PLOT table. This number is a key field used when joining the COND table to the PLOT table.

It is recommended that PLOT_ID be used when summarizing or grouping data by plot, because the original plot numbers (PLOT) are not unique in the database. For example, in FIA data, a plot number is unique within state and county, and in R5 and R6 it is unique within region and national forest.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **R5_LOGNUM**

CODED? **No**

BRIEF DESCRIPTION: **Unique number for each down log on a point for Region 5 plots**

DEFINITION:

This unique number was assigned to each log by R5 field crew. It can be used to relate the logs back to the original R5 database if needed.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **SUBPLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Subplot ID: Unique number assigned to each row in the subplot table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Subplot (SUBPLOT) table. SUBPLOT_ID is a key field, used to join this table to the SUBPLOT table.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **SUBPLOT_NUM**

CODED? **Yes**

BRIEF DESCRIPTION: **Subplot number on the plot**

DEFINITION:

A number identifying the individual subplot location (point, stake position) in the plot cluster. Plots have a maximum of 5 subplots. For FIA subplots, the original subplot number recorded in the field is stored in the SUBPLOT table and called FIELD_SUBPLOT_NUMBER.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **TL_COND_HD_FT**

CODED? **No**

BRIEF DESCRIPTION: **Total length of the transect line in the condition class on the plot, in feet**

DEFINITION:

The sum of the length of all transect lines in one condition on the plot, horizontal distance, in feet. All of the individual transect segments across all subplots are summed within the same condition class. This total length of transect line is required for all equations that estimate a per-acre value for each piece of down wood. This is the piece of data that converts individual estimates to a per-acre estimate for the condition, which can then be expanded by the acres for that condition to develop a population estimate.

Region 5 did not sample down wood with the line intersect transect method, therefore this column is null for this inventory.

For more information about down wood calculations and sampling techniques refer to the technical document: "Down Wood Inventories in the IDB.doc" in the Technical Documentation folder on the CD; or review the field manuals located on the CD.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **TL_COND_HD_M**

CODED? **No**

BRIEF DESCRIPTION: **Total length of the transect line in the condition class on the plot, in meters**

DEFINITION:

The sum of the length of all transect lines in one condition on the plot, horizontal distance, in meters. All of the individual transect segments across all subplots are summed within the same condition class. This total length of transect line is required for all equations that estimate a per-acre value for each piece of down wood. This is the piece of data that converts individual estimates to a per-acre estimate for the condition, which can then be expanded by the acres for that condition to develop a population estimate.

Region 5 did not sample down wood with the line intersect transect method, therefore this column is null for this inventory.

For more information about down wood calculations and sampling techniques refer to the technical document: "Down Wood Inventories in the IDB.doc" in the Technical Documentation folder on the CD; or review the field manuals located on the CD.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **TL_SUBPLOT_HD_FT**

CODED? **No**

BRIEF DESCRIPTION: **Length of the individual transect line in one condition class on the subplot, in feet**

DEFINITION:

The length of one transect line (in one direction) in one condition on the subplot, horizontal distance, in feet. The sampling design varied among Data Sources, in terms of number of transects installed per subplot, direction of transect on the subplot, and length of transect.

For Region 6 and BLM, 1 transect line was installed per subplot in the following directions: North on subplots 1 and 4, South on subplot 2, West on subplot 3, and East on subplot 5.
For FIACA, 2 transects were installed per subplot, running North and East.
For FIAEO and FIAWO, 3 transects were installed per subplot, with azimuths of 360, 135, and 225 degrees.
For FIAEW, 4 transects were installed per subplot, with azimuths of 360 (N), 90 (E), 200 (S), 250 (W) degrees.

For FIACA, FIAEO, FIAWO the transect lengths ran 55.8 ft, the radius of the subplot.
For FIAEW, the transects were 32.8 ft long.
For Region 6 and BLM, transects were 51.1 ft long.

For FIA inventories, where the change in condition was mapped along each transect line, this column is actually the sum of the transect segments within one condition on the same transect line.

Each record in the DOWN_WOOD table contains a subplot number, transect ID, condition class, and transect length. The TL_SUBPLOT_HD_FT is the sum of all transect lengths in one condition for each transect ID (or individual transect line). Note that this is often the length of the entire transect line, but where more than one condition exists along a transect, TL_SUBPLOT_HD_FT will be the total of all transect segments in one condition on one line.

Region 5 did not sample down wood with the line intersect transect method, therefore this column is null for this inventory.

For more information about down wood calculations and sampling techniques refer to the technical document: "Down Wood Inventories in the IDB.doc" in the Technical Documentation folder on the CD; or review the field manuals located on the CD.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **TL_SUBPLOT_HD_M**

CODED? **No**

BRIEF DESCRIPTION: **Length of the individual transect line in one condition class on the subplot, in meters**

DEFINITION:

The length of one transect line (in one direction) in one condition on the subplot, horizontal distance, in meters. The sampling design varied among Data Sources, in terms of number of transects installed per subplot, direction of transect on the subplot, and length of transect.

For Region 6 and BLM, 1 transect line was installed per subplot in the following directions: North on subplots 1 and 4, South on subplot 2, West on subplot 3, and East on subplot 5.
For FIACA, 2 transects were installed per subplot, running North and East.
For FIAEO and FIAWO, 3 transects were installed per subplot, with azimuths of 0, 135, and 225 degrees.
For FIAEW, 4 transects were installed per subplot, with azimuths of 360 (N), 90 (E), 200 (S), 250 (W) degrees.

For FIACA, FIAEO, FIAWO the transect lengths ran 17m, the radius of the subplot.
For FIAEW, the transects were just 10m long.
For Region 6 and BLM, transects were 15.6m long.

For FIA inventories, where the change in condition was mapped along each transect line, this column is actually the sum of the transect segments within one condition on the same transect line.

Each record in the DOWN_WOOD table contains a subplot number, transect ID, condition class, and transect length. The TL_SUBPLOT_HD_M is the sum of all transect lengths in one condition for each transect ID (or individual transect line). Note that this is often the length of the entire transect line, but where more than one condition exists along a transect, TL_SUBPLOT_HD_M will be the total of all transect segments in one condition on one line.

Region 5 did not sample down wood with the line intersect transect method, therefore this column is null for this inventory.

For more information about down wood calculations and sampling techniques refer to the technical document: "Down Wood Inventories in the IDB.doc" in the Technical Documentation folder on the CD; or review the field manuals located on the CD.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **TRANSECT_ID**

CODED? **Yes**

BRIEF DESCRIPTION: **The original code that identifies a transect line on a subplot**

DEFINITION:

This code identifies the direction of the transect. It also uniquely identifies each transect on the subplot. TRANSECT_ID may vary by Data Source as shown below.

For Region 6 and BLM, 1 transect line was installed per subplot in the following directions: North on subplots 1 and 4, South on subplot 2, West on subplot 3, and East on subplot 5. Transects are coded N, S, E, or W.

For FIACA, 2 transects were installed per subplot, running North and East. Transects are coded N and E.

For FIAEO and FIAWO, 3 transects were installed per subplot, with azimuths of 0(360), 135, and 225 degrees. Transects are coded 135, 225, and 360.

For FIAEW, 4 transects were installed per subplot, with azimuths of 360 (N), 90 (E), 200 (S), 250 (W) degrees. Transects are coded N, S, E, and W.

For more information about down wood calculations and sampling techniques refer to the technical document: "Down Wood Inventories in the IDB.doc" in the Technical Documentation folder on the CD; or review the field manuals located on the CD.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **TREE_SPECIES**

CODED? **Yes**

BRIEF DESCRIPTION: **A numeric code to identify tree species**

DEFINITION:

A numeric code to identify the species of the down wood tallied on the plot.
Codes less than 300 are softwoods and codes > 300 are hardwoods.

A code of 0 means there was no tally on the transect.
A code of 999 means that the species could not be determined.

Refer to the metadata table called IDB_TREE_SPECIES for a variety of data about tree species, including the numeric and alpha code, species codes used by R5, R6, and BLMWO, common name, scientific name, FVS species codes, and years to breast height.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **TREE_SPECIES_GROUP**

CODED? **Yes**

BRIEF DESCRIPTION: **A text code to organize species into groups**

DEFINITION:

This code organizes species by hardwood, softwood, no-tally, or unknown.

TREE_SPECIES_GROUP = HW for logs with a numeric tree species between 300 - 998.
TREE_SPECIES_GROUP = SW for logs with a numeric tree species between 1 - 299.

TREE_SPECIES_GROUP = NT = No Tally: for logs with a numeric tree species of 0, which is essentially a placeholder for a no-tally line. If no tally was recorded, each subplot/transectID/condition must have a 'zero line' entered to show the transect was installed.

TREE_SPECIES_GROUP = UNK for logs with a numeric tree species of 999: species unknown.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **USAGE**

CODED? **yes**

BRIEF DESCRIPTION: **Wildlife use code**

DEFINITION:
A code indicating whether the down wood has cavities or excavations -- a sign that wildlife may be using the log for cover.

These codes differ slightly by inventory.

0 = Excavations are not present (R6 and BLMWO)
1 = Excavations 1 to 5.9 inches are present (R6 and BLMWO)
2 = Excavations >= 6 inches are present (BLMWO only)
3 = Log is solid or has a cavity that is less than .5 meters. (FIA)
4 = Log is hollow for at least .5 meters. (FIA)

R5 did not record data about wildlife usage on down wood.

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **VOL_AC_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Cubic volume per acre for the individual log, in ft3/ac**

DEFINITION:
The volume/acre in cubic feet/ac for each individual log.

For Region 6, BLMWO, and FIA, volume/acre is estimated from individual log volume and total transect length in the condtion, according to line intersect sampling formulas:

VOL_AC_FT3=(3.1416/(2*TL_COND_HD_FT) * (VOL_LOG_FT3/LOG_LENGTH_FT)) *(43560)

For Region 5, volume/acre is estimated from individual log volume and logs/acre:

VOL_AC_FT3= LOGS_AC * VOL_LOG_FT3

Huber's volume formula is used to estimate R6 and BLMWO log volumes and Smalian's formula is used by FIA and R5 to calculate this estimate for the individual log. Please see the definition for VOL_LOG_FT3.

To develop population estimates of volume, multiply VOL_AC_FT3 * ACRES_VOL to calculate total cubic volume represented by the individual piece of down wood.

Volume/acre should be summed to the condition level before use, within groups of your choice.

Note that for down wood, volumes are commonly summarized in the form of mean volume/acre within a category such as forest type, habitat type, etc. When developing this estimate, a weighted mean should be calculated using the column SAMPLING_WT_FAC from the COND table as the weight. This is a factor that reflects both the sampling grid intensity and the area sampled by the condition (COND_WT).

In addition, be sure to select CWD_sampled = 1 to include only those conditions and plots where CWD transects were actually installed and sampled. Note that this WILL include transects that had no CWD tallied because none were located on the transect line (i.e. a zero-tally line). When creating a mean, these zero-tally lines must be part of the calculation.

For more information please refer to papers in the Technical Documentation folder on the CD called "CWD_Calculation_Methods_Ecological Indicators paper.pdf" and "Down Wood inventories in the IDB.doc".

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **VOL_LOG_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Cubic volume of the individual log, in ft3**

DEFINITION:

This is the cubic volume of the log before it is converted to a per-acre basis. Simple volume equations are used to estimate log volume from log length and 1 or more diameters.

For Region 6 and BLMWO, where small end diameter is not available:
Use Huber's volume equation:
VOL_LOG_FT3= ((3.1416/4 * DIAM_I_IN**2) * LOG_LENGTH_FT) / 144

For FIA and Region 5, where both small and large-end diameters are present:
Use Smalian's volume equation:
VOL_LOG_FT3= ((3.1416/8 * (DIAM_S_IN**2 + DIAM_L_IN**2)) * LOG_LENGTH_FT) /144

Please see the VOL_FT3_AC definition for information on the per-unit area conversion.

For more information please refer to papers in the Technical Documentation folder on the CD called "CWD_Calculation_Methods_Ecological Indicators paper.pdf" and "Down Wood inventories in the IDB.doc".

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **VOL_LOG_M3**

CODED? **No**

BRIEF DESCRIPTION: **Cubic volume of the individual log, in m3**

DEFINITION:

This is the cubic volume of the log before it is converted to a per-hectare basis. Simple volume equations are used to estimate log volume from log length and 1 or more diameters.

For Region 6 and BLMWO, where small end diameter is not available:
Use Huber's volume equation:
VOL_LOG_M3 = ((3.1416/4 * DIAM_I_CM**2) * LOG_LENGTH_M) / 10000

For FIA and Region 5, where both small and large-end diameters are present:
Use Smalian's volume equation:
VOL_LOG_M3 = ((3.1416/8 * (DIAM_S_CM**2 + DIAM_L_CM**2)) * LOG_LENGTH_M) / 10000

Please see the VOL_M3_HA definition for information on the per-unit area conversion.

For more information please refer to papers in the Technical Documentation folder on the CD called "CWD_Calculation_Methods_Ecological Indicators paper.pdf" and "Down Wood inventories in the IDB.doc".

TABLE NAME: **DOWN_WOOD**

COLUMN NAME: **VOL_M3_HA**

CODED? **No**

BRIEF DESCRIPTION: **Cubic volume per hectare for the individual log, in m3/ha**

DEFINITION:

The volume/hectare in cubic meters/ha that each individual log represents.

For Region 6, BLMWO, and FIA, volume/ha is estimated from individual log volume and total transect length in the condtion:

VOL_M3_HA= (3.1416/(2*TL_COND_HD_M) * (VOL_LOG_M3/LOG_LENGTH_M)) * (10000)

For Region 5, volume/ha is estimated from individual log volume and logs/hectare:

VOL_M3_HA= LOGS_HA * VOL_LOG_M3

Huber's volume formula is used to estimate R6 and BLMWO log volumes and Smalian's formula is used by FIA and R5 to calculate this estimate for the individual log. Please see the definition for VOL_LOG_M3.

To develop population estimates of volume, multiply VOL_M3_HA * ACRES_VOL *.4047.

Volume/ha should be summed to the condition level before use, within groups of your choice.

Note that for down wood, volumes are commonly summarized in the form of mean volume/ha within a category such as forest type, habitat type, etc. When developing this estimate, a weighted mean should be calculated using the column SAMPLING_WT_FAC from the COND table as the weight. This is a factor that reflects both the sampling grid intensity and the area sampled by the condition (COND_WT).

In addition, be sure to select CWD_sampled = 1 to include only those conditions and plots where CWD transects were actually installed and sampled. Note that this WILL include transects that had no CWD tallied because none were located on the transect line. When creating a mean, these zero-tally lines must be part of the calculation.

For more information please refer to papers in the Technical Documentation folder on the CD called "CWD_Calculation_Methods_Ecological Indicators paper.pdf" and "Down Wood inventories in the IDB.doc".

TABLE NAME: **PLOT**

COLUMN NAME: **ASSESSMENT_DATE**

CODED? **No**

BRIEF DESCRIPTION: **Date the plot was visited or assessed by photo or map.**

DEFINITION:

The assessment date is the date the plot was visited and measured, or if the plot was not visited but still part of the inventory (i.e. a nonforest plot), this is the date the plot was evaluated and classified by aerial photograph or map.

TABLE NAME: **PLOT**

COLUMN NAME: **CNTY**

CODED? **Yes**

BRIEF DESCRIPTION: **County code**

DEFINITION:

A numeric code which identifies the county where the field plot is located. County codes are unique within a state. See the code definitions for a list of counties and their text names. Use the table IDB_COUNTY_NAMES to use names of counties in queries.

CNTY should not be used to link tables. Use COND_ID which is a unique identifier

TABLE NAME: **PLOT**

COLUMN NAME: **DATA_SOURCE**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies the source of the inventory data. [Key Field]**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from nine different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by five individual forest inventory programs from two agencies, including the Forest Inventory and Analysis program of the Pacific Northwest Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, the Natural Resource Inventory program of the Bureau of Land Management in western Oregon and the Interior West Forest Inventory and Analysis Program of the Rocky Mountain Research Station. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Rocky Mountain Research Station's Interior West FIA unit inventoried small pieces of Washington (Kaniksu NF) and California (Toiyabe NF) and are coded RMRS.

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
PLOT	**DATA_SOURCE_NAME**	

BRIEF DESCRIPTION: **Descriptive name for the source of the inventory data.**

DEFINITION:

Description of the inventory program or periodic inventory in an expanded text format. Intended to provide more information for the users when running queries on the data. For example the FIAWO data source is shown as "FIA Western Oregon 1995 Inventory" and the R5 data source is shown as "Region 5, Pacific Southwest Region".

TABLE NAME: **PLOT**

COLUMN NAME: **ELEV_FT**

CODED? **No**

BRIEF DESCRIPTION: **Elevation of the plot area, in feet**

DEFINITION:
The distance the plot is located above sea level, in feet. Derived from USGS quadrangle maps and global positioning system (GPS) measurements.

TABLE NAME: **PLOT**

COLUMN NAME: **ELEV_M**

CODED? **No**

BRIEF DESCRIPTION: **Elevation of the plot area, in meters**

DEFINITION:
The distance the plot is located above sea level, in meters. Derived from USGS quadrangle maps and global positioning system (GPS) measurements.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
PLOT	**FOREST_DISTRICT**	

BRIEF DESCRIPTION: **National Forest District code**

DEFINITION:
A numeric code for the National Forest District in R6 Data_source where the field plot is located. See table IDB_FOREST_DISTRICT_VARIANT_DESC for district names.

TABLE NAME: **PLOT**

COLUMN NAME: **FOREST_OR_BLM_DISTRICT**

CODED? **Yes**

BRIEF DESCRIPTION: **Administrative National Forest code**

DEFINITION:

A numeric code for the National Forest or BLM district where the field plot is located. Region 5 has 18 individual National Forests, Region 6 has 19 National Forests, and the BLM has 6 districts in western Oregon. Inventories are generally organized and compiled by Forest or BLM district. In addition there is one forest in Region 1 in Washington and one forest in Region 4 in California.

The FOREST_OR_BLM_DISTRICT code combined with CNTY and PLOT (plot number) uniquely identify each plot location in the R5 data source. For R6 and BLMWO as well as RMRS data sources the plot number is unique. However, it is recommended that the plot ID column in this table be used to uniquely identify every plot in the database, because FIA inventories require state and county along with plot number to be unique. The PLOT_ID column gets rid of the need to include multiple columns to uniquely identify a plot.

The FOREST_OR_BLM_DISTRICT column is blank for FIA inventories.

TABLE NAME: **PLOT**

COLUMN NAME: **FOREST_PROCLAIMED**

CODED? **Yes**

BRIEF DESCRIPTION: **Proclaimed National Forest code**

DEFINITION:

A numeric code for the National Forest officially proclaimed by the Washington DC office to manage a piece of land. Because of logistics and other reasons, an adjacent National Forest might actually administer the management of a section of land close to the Forest's borders. The administrative forest (FOREST_OR_BLM_DISTRICT) is the forest most commonly referred to and used when working with plot data.

TABLE NAME: **PLOT**

COLUMN NAME: **FVS_VARIANT**

CODED? **Yes**

BRIEF DESCRIPTION: **Forest Vegetation Simulator Variant code**

DEFINITION:

Forest Vegetation Simulator variant code describes the location of the plot for use with FVS equations and programs.

See the table FOREST_DISTRICT_VARIANT_DESC for names.

Note that this variant call was used to select FVS Height equations to develop estimates on some trees in the IDB. The call was made by IDB staff and was based on information obtained from the FVS programs and documentation.

Region 6 staff has developed a more accurate call since our original determination of Variant for height equations. The new call is located in the table IDB_CVS_VARIANT and is called VARIANT. It should be used for all future work that requires knowledge of the Variant for a given plot.

(The new call was made by Carol Apple and Melinda Moeur in the Regional Office)

TABLE NAME: **PLOT**

COLUMN NAME: **HALF_STATE**

CODED? **Yes**

BRIEF DESCRIPTION: **Code indicating which half of Oregon and Washington contains the plot location.**

DEFINITION:

A text code which indicates if the plot is on the east or west side of the Cascades in Oregon or Washington. The codes include WOR, EOR, WWA, and EWA. For California, where there are no true half-states, all plots are coded as CA.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
PLOT	**OCCASION_NUM**	

BRIEF DESCRIPTION: **Occasion number of the current inventory**

DEFINITION:

The occasion, or remeasurement cycle number, for the current inventory. FIA plots have had a number of occasions, only the most recent occasion was entered in to this database. An occasion refers to the number of times a plot was remeasured.
All R5, R6, BLM plots in this database were part of the first measurement of each regional inventory (panel 1), and are coded as "1".

TABLE NAME: **PLOT**

COLUMN NAME: **PLOT**

CODED? **No**

BRIEF DESCRIPTION: **Original plot number**

DEFINITION:

The original numeric code that identified the individual field plot location for a given inventory (data source). This is the number used by field crews and office staff to identify all materials and information for that plot while compiling and executing the inventory. Some plot numbers are unique within a Forest and others are unique in the entire regional inventory. In FIA inventories most plot numbers are unique within a state and county.

Because of this variability in uniqueness from the many data sources in this database, it is recommended that the column PLOT_ID be used to uniquely identify every plot location in this database. ID is unique across all data sources and all inventories.

The column PLOT is useful to link to other databases that only contain the original plot number as an identifier.

TABLE NAME: **PLOT**

COLUMN NAME: **PLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Plot ID: Unique number assigned to each row in the plot table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each plot (row) in the entire PLOT table. This number is a key field used to join with other tables in the database.

It is recommended that PLOT_ID be used when summarizing or grouping data by plot, because the original plot numbers (PLOT) are not unique in the database. For example, in FIA data, a plot number is unique within state and county, and in R5 and R6 it is unique within region and national forest.

TABLE NAME: **PLOT**

COLUMN NAME: **PROXY_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Indicates that the plot is a proxy plot.**

DEFINITION:

Proxy plots are artificial plots that were added to the IDB to represent land area or census water area, which was not sampled in the inventory. The intent of these plots was to make sure that the total land area for each county in the IDB matched the area in the 1990 Census Bureau reports. The Census report also shows the amount of acres classified as census water in each county. Some FIA inventories only sampled unreserved forest land and most sampled only a portion of the nonforest acres that exist in a county. To account for these unsampled locations, a series of proxy plots was added to the PLOT and COND tables. Each plot record contains a minimal amount of information, enough to supply an estimate of acres for a certain category within a county. For example, a plot might be entered to represent reserved forest land, and contain a GLC, Reserved status code, forest type (estimated), condition class, and Acres.

Condition weights are meaningless on proxy plots and are null in the IDB.

The Proxy_YN column clearly identifies which artificial plots were added to the IDB.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
PLOT	**STATE**	

BRIEF DESCRIPTION: **State where the plot is located**

DEFINITION:
A numeric code to identify the state where the plot is located. The states Oregon, California, and Washington are represented in this database.

TABLE NAME: **PLOT**

COLUMN NAME: **SUBPLOT_COUNT_PLOT**

CODED? **No**

BRIEF DESCRIPTION: **Count of the total number of subplots on the plot**

DEFINITION:

A count of the total number of subplots or proportions of subplots installed on the plot, regardless of condition class. Each plot has a maximum of 5 subplots. If the count is less than 5, then a subplot or portion of a subplot may be out of the sampled inventory area, denied access, or simply not sampled or installed.

This column is different from the SUBPLOT_COUNT_COND in the COND table which is actually the sum of the proportions of each subplot in one condition.

If PROXY=Y THEN COUNT=0
If GLC=60 (nonforest) and the entire plot is nonforest then the plot was classified on a photo and the COUNT=0.

TABLE NAME: **PLOT**

COLUMN NAME: **SURVEY_UNIT_FIA**

CODED? **Yes**

BRIEF DESCRIPTION: **Survey unit**

DEFINITION:

A numeric code identifying the survey unit where the plot is located. A survey unit consists of a specific set of counties in each state. These are geographic designations set up by FIA to organize inventories for data collection purposes and for analysis. All of the R5, R6, and BLMWO plots have been assigned a survey unit code in this database.

Note that '0' is a valid code.

See the code definitions for a list of counties by survey unit and state.

TABLE NAME: **PLOT_COORD**

COLUMN NAME: **LATITUDE_FUZZ**

CODED? **No**

BRIEF DESCRIPTION: **Latitude of the plot location.**

DEFINITION:
The fuzzed latitude that identifies the coordiantes of the inventory plot.

FIA is mandated by Law not to disclose any information that can be tied back to an individual landowner. For this reason we can not give the actual true plot locations out to anyone, because they might be able to use GIS or tax records to ascertain the individual owner of the plot. We use a randomized offset for each plot to mask the true location. This is called fuzzing. For all plots in the IDB that are on lands in public ownership (such as State, Federal and municipal), we randomly offset the coordinates up to 1/2 mile in any direction. We further randomly selected 5% of these plots and offset them by up to 1 mile (instead of the 1/2 mile). Plots in the IDB that are on privately owned lands were fuzzed to 100 seconds of latitude and longitude, which is up to about 2 miles. Using this method, plots were not allowed to jump county lines when we fuzzed the coordinates.

Simply fuzzing the plot coordinates does not truly protect us from disclosing data that could be tied to an individual owner, and thus does not comply with the law. For instance, a plot offset by a half mile (or even two miles) in the center of the Warm Springs Reservation would still be in the Reservation, so all data associated with that plot could be tied to an individual owner, in this case the Consolidated Tribes of the Warm Springs. So, the data for a percentage of the IDB plots on privately owned lands have been swapped with the data from a similar plot in the county. In this way, there is always a chance that the data can not be tied back to the single owner, even with a GIS system, thus FIA would still be complying with the law.

The swapping method was designed to minimize the affects on analysis. And since no plots are allowed to move to another county, analysis at the county level will not be affected. However, a group of plots from a part of a county might show effects of fuzzing and swapping, with the fewer the number of plots chosen, the greater the possible effect.

If true plot coordinates are needed, please contact the FIA program in Portland, OR to determine if we can accommodate your request. Specific protocol for the use of FIA coordinates has been established, and is granted on a case by case basis.

TABLE NAME: **PLOT_COORD**

COLUMN NAME: **LONGITUDE_FUZZ**

CODED? **No**

BRIEF DESCRIPTION: **Longitude of the plot location.**

DEFINITION:

The fuzzed longitude that identifies the coordiantes of the inventory plot.

FIA is mandated by Law not to disclose any information that can be tied back to an individual landowner. For this reason we can not give the actual true plot locations out to anyone, because they might be able to use GIS or tax records to ascertain the individual owner of the plot. We use a randomized offset for each plot to mask the true location. This is called fuzzing. For all plots in the IDB that are on lands in public ownership (such as State, Federal and municipal), we randomly offset the coordinates up to 1/2 mile in any direction. We further randomly selected 5% of these plots and offset them by up to 1 mile (instead of the 1/2 mile). Plots in the IDB that are on privately owned lands were fuzzed to 100 seconds of latitude and longitude, which is up to about 2 miles. Using this method, plots were not allowed to jump county lines when we fuzzed the coordinates.

Simply fuzzing the plot coordinates does not truly protect us from disclosing data that could be tied to an individual owner, and thus does not comply with the law. For instance, a plot offset by a half mile (or even two miles) in the center of the Warm Springs Reservation would still be in the Reservation, so all data associated with that plot could be tied to an individual owner, in this case the Consolidated Tribes of the Warm Springs. So, the data for a percentage of the IDB plots on privately owned lands have been swapped with the data from a similar plot in the county. In this way, there is always a chance that the data can not be tied back to the single owner, even with a GIS system, thus FIA would still be complying with the law.

The swapping method was designed to minimize the affects on analysis. And since no plots are allowed to move to another county, analysis at the county level will not be affected. However, a group of plots from a part of a county might show effects of fuzzing and swapping, with the fewer the number of plots chosen, the greater the possible effect.

If true plot coordinates are needed, please contact the FIA program in Portland, OR to determine if we can accommodate your request. Specific protocol for the use of FIA coordinates has been established, and is granted on a case by case basis.

TABLE NAME: **PLOT_COORD**

COLUMN NAME: **PLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each plot row in the entire PLOT table, [Key field]**

DEFINITION:

A sequential number which uniquely identifies each plot (row) in the entire PLOT table. This number is a key field used when joining the COND table to the PLOT table.

It is recommended that PLOT_ID be used when summarizing or grouping data by plot, because the original plot numbers (PLOT) are not unique in the database. For example, in FIA data, a plot number is unique within state and county, and in R5 and R6 it is unique within region and national forest.

TABLE NAME: **PLOT_EXTRA**

COLUMN NAME: **BAILEY_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **A code that identifies an Ecoregion, using Bailey's coding system.**

DEFINITION:

A text code that identifies the combined Bailey Province and Bailey Section classifications for and ecoregion.

Ecoregions are large areas of similar climate where ecosystems recur in predictable patterns. They are geographically distinct areas of land that are characterized by distinctive ecological features and plant and animal communities.

Bailey's regional criteria were developed for general purpose use, largely by natural resource disciplines. Delineation was based on climate, vegetation, geology, and soils. In the upper more general levels, climate is most influential. In the lower levels, soil is dominant. At the ninth (or site) level, soil phase (e.g., a series split as a function of slope) is the characteristic forcing an area into a category.

For more information, see:
http://www.fs.fed.us/institute/ecoregions/ecoreg1_home.html

The codes and their definitions can be found in the IDB documentation.

TABLE NAME: **PLOT_EXTRA**

COLUMN NAME: **BAILEY_PROVINCE**

CODED? **No**

BRIEF DESCRIPTION: **The descriptive name of the Ecoregion Province.**

DEFINITION:
A descriptive title for each of Bailey's 13 Ecoregion Provinces.

Ecoregions are large areas of similar climate where ecosystems recur in predictable patterns. They are geographically distinct areas of land that are characterized by distinctive ecological features and plant and animal communities.

Bailey's regional criteria were developed for general purpose use, largely by natural resource disciplines. Delineation was based on climate, vegetation, geology, and soils. In the upper more general levels, climate is most influential. In the lower levels, soil is dominant. At the ninth (or site) level, soil phase (e.g., a series split as a function of slope) is the characteristic forcing an area into a category.

For more information, see:
http://www.fs.fed.us/institute/ecoregions/ecoreg1_home.html

The codes and their definitions can be found in the IDB documentation.

TABLE NAME: **PLOT_EXTRA**

COLUMN NAME: **BAILEY_PROVINCE_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **A numeric code to identify the Bailey Ecoregion Province.**

DEFINITION:
For ease of use, each of the 13 Ecoregion Provinces were given a numeric code to aid in selection of a Province during summary or analysis.

TABLE NAME: **PLOT_EXTRA**

COLUMN NAME: **BAILEY_SECTION**

CODED? **No**

BRIEF DESCRIPTION: **The descriptive name of the Ecoregion Section.**

DEFINITION:

A descriptive title for each of Bailey's Ecoregion Sections. There can be multiple Sections within one Province.

Ecoregions are large areas of similar climate where ecosystems recur in predictable patterns. They are geographically distinct areas of land that are characterized by distinctive ecological features and plant and animal communities.

Bailey's regional criteria were developed for general purpose use, largely by natural resource disciplines. Delineation was based on climate, vegetation, geology, and soils. In the upper more general levels, climate is most influential. In the lower levels, soil is dominant. At the ninth (or site) level, soil phase (e.g., a series split as a function of slope) is the characteristic forcing an area into a category.

For more information, see:
http://www.fs.fed.us/institute/ecoregions/ecoreg1_home.html

The codes and their definitions can be found in the IDB documentation.

TABLE NAME: **PLOT_EXTRA**

COLUMN NAME: **OMERNIK_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **A numeric code to identify the OMERNIK Ecoregion.**

DEFINITION:

There are 19 Level 3 Omernik Ecoregions identified in the 3 states of the IDB.

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance. These general purpose regions are critical for structuring and implementing ecosystem management strategies across federal agencies, state agencies, and nongovernment organizations that are responsible for different types of resources within the same geographical areas.

Please see the column definition for OMERNIK_ECOREGION for a brief description of each ecoregion.

TABLE NAME: **PLOT_EXTRA**

COLUMN NAME: **OMERNIK_ECOREGION**

CODED? **No**

BRIEF DESCRIPTION: **The descriptive name of the Omernik Ecoregion.**

DEFINITION:
There are 19 Level 3 Omernik Ecoregions identified in the 3 states of the IDB. This column stores a short name or title for each ecoregion.

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance. These general purpose regions are critical for structuring and implementing ecosystem management strategies across federal agencies, state agencies, and nongovernment organizations that are responsible for different types of resources within the same geographical areas.

PRIMARY DISTINGUISHING CHARACTERISTICS OF LEVEL III ECOREGIONS

1. COAST RANGE
The low mountains of the Coast Range are covered by highly productive, rain-drenched coniferous forests. Sitka spruce and coastal redwood forests originally dominated the fog-shrouded coast, while a mosaic of western red cedar, western hemlock, and seral Douglas-fir blanketed inland areas. Today Douglas-fir plantations are prevalent on the intensively logged and managed landscape.

2. PUGET LOWLANDS
This broad rolling lowland is characterized by a mild maritime climate. It occupies a continental glacial trough and is composed of many islands, peninsulas, and bays in the Puget Sound area. Coniferous forest originally grew on the ecoregion’s ground moraines. Outwash plains, floodplains, and terraces. The distribution of forest species is affected by the rainshadow from the Olympic Mountains.

3. WILLAMETTE VALLEY
Rolling prairies, deciduous/coniferous forests, and extensive wetlands characterized the pre-19th century landscape of this broad, lowland valley. The Willamette Valley is distinguished from the adjacent Coast Range (1) and Cascades (4) by lower precipitation, less relief, and a different mosaic of vegetation. Landforms consist of terraces and floodplains that are interlaced and surrounded by rolling hills. Productive soils and a temperate climate make it one of the most important agricultural areas in Oregon.

4. CASCADES
This mountainous ecoregion is underlain by Cenozoic volcanics and has been affected by alpine glaciations. It is characterized by steep ridges and river valleys in the west, a high plateau in the east, and both active and dormant volcanoes. Elevations range upwards to 4,390 meters. Its moist, temperate climate supports an extensive and highly productive coniferous forest. Subalpine meadows occur at high elevations.

5. SIERRA NEVADA
The Sierra Nevada is a deeply dissected block fault that rises sharply from the arid basin and range ecoregions on the east and slopes gently toward the Central California Valley to the

west. The eastern portion has been strongly glaciated and generally contains higher mountains than are found in the Klamath Mountains to the northwest. Much of the central and southern parts of the region is underlain by granite as compared to the mostly sedimentary formations of the Klamath Mountains and volcanic rocks of the Cascades. The higher elevations of this region are largely federally owned and include several national parks. The vegetation grades from mostly ponderosa pine at the lower elevations on the west side and lodgepole pine on the east side, to fir and spruce at the higher elevations. Alpine conditions exist at the highest elevations.

6. SOUTHERN AND CENTRAL CALIFORNIA CHAPARRAL AND OAK WOODLANDS
The primary distinguishing characteristic of this ecoregion is its Mediterranean climate of hot dry summers and cool moist winters, and associated vegetative cover comprising mainly chaparral and oak woodlands; grasslands occur in some lower elevations and patches of pine are found at higher elevations. Most of the region consists of open low mountains or foothills, but there are areas of irregular plains in the south and near the border of the adjacent Central California Valley ecoregion. Much of this region is grazed by domestic livestock; very little land has been cultivated.

7. CENTRAL CALIFORNIA VALLEY
Flat, intensively farmed plains having long, hot dry summers and cool wet winters distinguish the Central California Valley from its neighboring ecoregions that are either hilly or mountainous, forest or shrub covered, and generally nonagricultural. Nearly half of the region is in cropland, about three fourths of which is irrigated. Environmental concerns in the region include salinity due to evaporation of irrigation water, groundwater contamination from heavy use of agricultural chemicals, wildlife habitat loss, and urban sprawl.

8. SOUTHERN CALIFORNIA MOUNTAINS
Like the other ecoregions in central and southern California, the Southern California Mountains has a Mediterranean climate of hot dry summers and moist cool winters. Although Mediterranean types of vegetation such as chaparral and oak woodlands predominate, the elevations are considerably higher in this region, the summers are slightly cooler, and precipitation amounts are greater, causing the landscape to be more densely vegetated and stands of ponderosa pine to be larger and more numerous than in the adjacent regions. Severe erosion problems are common where the vegetation cover has been destroyed by fire or overgrazing.

9. EASTERN CASCADE SLOPES AND FOOTHILLS
The Eastern Cascade Slopes and Foothills ecoregion is in the rainshadow of the Cascade Mountains. Its climate exhibits greater temperature extremes and less precipitation than ecoregions to the west. Open forests of ponderosa pine and some lodgepole pine distinguish this region from the higher ecoregions to the west where fir and hemlock forests are common, and the lower dryer ecoregions to the east where shrubs and grasslands are predominant. The vegetation is adapted to the prevailing dry continental climate and is highly susceptible to wildfire. Volcanic cones and buttes are common in much of the region.

10. COLUMBIA PLATEAU
The Columbia Plateau is an arid sagebrush steppe and grassland, surrounded on all sides by moister, predominantly forested, mountainous ecological regions. This region is underlain by basalt up to two miles thick. It is covered in some places by loess soils that have been extensively cultivated for wheat, particularly in the eastern portions of the region where precipitation amounts are greater.

11. BLUE MOUNTAINS
This ecoregion is distinguished from the neighboring Cascades and Northern Rockies ecoregions because the Blue Mountains are generally not as high and are considerably more open. Like the Cascades, but unlike the Northern Rockies, the region is mostly volcanic in

origin. Only the few higher ranges, particularly the Wallowa and Elkhorn Mountains, consist of intrusive rocks that rise above the dissected lava surface of the region. Unlike the bulk of the Cascades and Northern Rockies, much of this ecoregion is grazed by cattle.

12. SNAKE RIVER PLAIN
This portion of the xeric intermontane basin and range area of the western United States is considerably lower and more gently sloping than the surrounding ecoregions. Mostly because of the available water for irrigation, a large percent of the alluvial valleys bordering the Snake River are in agriculture, with sugar beets, potatoes, and vegetables being the principal crops. Cattle feedlots and dairy operations are also common in the river plain. Except for the scattered barren lava fields, the remainder of the plains and low hills in the ecoregion have a sagebrush steppe potential natural vegetation and are now used for cattle grazing.

13. CENTRAL BASIN AND RANGE
The Central Basin and Range ecoregion is internally drained and is characterized by a mosaic of xeric basins, scattered low and high mountains, and salt flats. It has a hotter and drier climate, more shrubland, and more mountain ranges than the Snake River Plain and Northern Basin and Range ecoregions to the north. Basins are covered by Great Basin sagebrush or saltbush-greasewood vegetation that grow in Aridisols; cool season grasses are less common than in the Mollisols of the Snake River Plain and Northern Basin and Range. The region is not as hot as the Mojave and Sonoran Basin and Range ecoregions and it has a greater percent of land that is grazed.

14. MOJAVE BASIN AND RANGE
This ecoregion contains scattered mountains which are generally lower than those of the Central Basin and Range. Potential natural vegetation in this region is predominantly creosote bush, as compared to the mostly saltbush-greasewood and Great Basin sagebrush of the ecoregion to the north, and creosote bush-bur sage with large patches of palo verde-cactus shrub and saguaro cactus in the Sonoran Basin and Range to the south. Most of this region is federally owned and there is relatively little grazing activity because of the lack of water and forage for livestock. Heavy use of off-road vehicles and motorcycles in some areas has caused severe wind and water erosion problems.

15. NORTHERN ROCKIES
The high, rugged Northern Rockies is mountainous and lies east of the Cascades. Despite its inland position, climate and vegetation are, typically, marine-influenced. Douglas fir, subalpine fir, Englemann spruce, and ponderosa pine and Pacific indicators such as western red cedar, western hemlock, and grand fir are found in the ecoregion. The vegetation mosaic is different from that of the Middle Rockies which is not dominated by maritime species. The Northern Rockies ecoregion is not as high nor as snow- and ice-covered as the Canadian Rockies although alpine characteristics occur at highest elevations and include numerous glacial lakes. Granitics and associated management problems are less extensive than in the Idaho Batholith.

77. NORTH CASCADES
The terrain of the North Cascades is composed of high, rugged mountains. It contains the greatest concentration of active alpine glaciers in the conterminous United States and has a variety of climatic zones. A dry continental climate occurs in the east and mild, maritime, rainforest conditions are found in the west. It is underlain by sedimentary and metamorphic rock in contrast to the adjoining Cascades which are composed of volcanics.

78. KLAMATH MOUNTAINS
The ecoregion is physically and biologically diverse. Highly dissected, folded mountains, foothills, terraces, and floodplains occur and are underlain by igneous, sedimentary, and some metamorphic rock. The mild, subhumid climate of the Klamath Mountains is

characterized by a lengthy summer drought. It supports a vegetal mix of northern Californian and Pacific Northwest conifers.

80. NORTHERN BASIN AND RANGE
This ecoregion contains arid tablelands, intermontane basins, dissected lava plains, and scattered mountains. Non-mountain areas have sagebrush steppe vegetation; cool season grasses and Mollisols are more common than in the hotter-drier basins of the Central Basin and Range where Aridisols are dominated by sagebrush, shadscale, and greasewood. Ranges are generally covered in Mountain sagebrush, mountain brush, and Idaho fescue at lower and mid-elevations; Douglas-fir, and aspen are common at higher elevations. Overall, the ecoregion is drier and less suitable for agriculture than the Columbia Plateau and higher and cooler than the Snake River Plain. Rangeland is common and dryland and irrigated agriculture occur in eastern basins.

81. SONORAN BASIN AND RANGE
Similar to the Mojave Basin and Range to the north, this ecoregion contains scattered low mountains and has large tracts of federally owned land, most of which is used for military training. However, the Sonoran Basin and Range is slightly hotter than the Mojave and contains large areas of palo verde-cactus shrub and giant saguaro cactus, whereas the potential natural vegetation in the Mojave is largely creosote bush.

References:
http://www.epa.gov/wed/pages/ecoregions/ecoregions.htm

T. Simon and W Davis (eds) Lewis Publishers, Chelsea, MT. Omernik, J.M. 1987. Ecoregions of the Conterminous United States. Map (scale 1:7,500,000), Annals of the Association of American Geographers 77(1):118-125.

Omernick, J.M. and Gallant, A.L. 1986. Ecoregions of the Pacific Northwest, EPA/600/3-86/033, 39pp plus map (scale 1:2,500,000).

TABLE NAME: **PLOT_EXTRA**

COLUMN NAME: **PLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each plot row in the entire PLOT table, [Key field]**

DEFINITION:

A sequential number which uniquely identifies each plot (row) in the entire PLOT table. This number is a key field used when joining the COND table to the PLOT table.

It is recommended that PLOT_ID be used when summarizing or grouping data by plot, because the original plot numbers (PLOT) are not unique in the database. For example, in FIA data, a plot number is unique within state and county, and in R5 and R6 it is unique within region and national forest.

TABLE NAME: **STRATUM**

COLUMN NAME: **FIELD_PLOT_COUNT**

CODED? **No**

BRIEF DESCRIPTION: **Count of field plot locations (m)**

DEFINITION:

The total number of field plot locations (secondary sample points) found within each stratum. For Region 5, this value can be fractional because plots can be located in multiple strata. For all other populations, this will be a whole number.
This column represents m in statistical formulas used to estimate standard errors.

TABLE NAME: **STRATUM**

COLUMN NAME: **GRID_SPACING**

CODED? **No**

BRIEF DESCRIPTION: **Grid spacing**

DEFINITION:
The spacing of the sample grid for each stratum.

TABLE NAME: **STRATUM**

COLUMN NAME: **PHOTO_POINT_COUNT**

CODED? **No**

BRIEF DESCRIPTION: **Count of FIA photo points for the phase 1 sample (m')**

DEFINITION:

In double sampling for stratification, the number of photo points (phase 1 plots) in the stratum.
This column is m' in statistical formulas used to estimate standard errors.
Only relevant for FIA inventories.

TABLE NAME: **STRATUM**

COLUMN NAME: **PLOT_AREA_IN_STRATUM**

CODED? **No**

BRIEF DESCRIPTION: **The plot area in each stratum**

DEFINITION:

The plot area. For FIA and Region 5, this is the summed area of the subplots, where subplot area is the largest area on which trees were measured. For Region 6 and BLM, this is also the largest area on which trees were measured, which was a circle encompassing the subplots.

TABLE NAME:	COLUMN NAME:	CODED? **No**
STRATUM	**SCHEME**	

BRIEF DESCRIPTION: **Stratification Scheme**

DEFINITION:
A unique value to represent the application of a stratification scheme to a population.

TABLE NAME: **STRATUM**

COLUMN NAME: **STRATUM_ACRES**

CODED? **No**

BRIEF DESCRIPTION: **Stratum Acres**

DEFINITION:
The total number of acres within one stratum.

TABLE NAME: **STRATUM**

COLUMN NAME: **STRATUM_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each stratum in the table. [Key Field]**

DEFINITION:

A unique number that identifies an individual stratum in the population.

If you are working with an AREA summary table, link the STRATUM_ID in the STRATUM table to the STRATUM_ID in the COND table.

If you are working with a VOLUME summary table, link the STRATUM_ID in the STRATUM table to the STRATUM_VOL_ID in the COND table.

TABLE NAME:	COLUMN NAME:	CODED? **No**
STRATUM	**STRATUM_NAME**	

BRIEF DESCRIPTION: **A brief name associated with the stratum**

DEFINITION:
A name that identifies or describes the type of stratum in the population.

TABLE NAME: **STRATUM**

COLUMN NAME: **STRATUM_SIZE**

CODED? **No**

BRIEF DESCRIPTION: **Size of the stratum (N)**

DEFINITION:

The size of the population as a theoretical number of possible plots in the population.
This column represents N in statistical formulas used to estimate standard errors.
STRATUM_SIZE= STRATUM_ACRES/PLOT_AREA_IN_STRATUM

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
SUBPLOT	**ASPECT_DEG**	

BRIEF DESCRIPTION: **Aspect in degrees -- Region 6 only**

DEFINITION:
The direction towards which a slope faces on the subplot. This aspect describes the majority if the area within the subplot boundary. Only available in the R6 and BLMWO inventories.

TABLE NAME: **SUBPLOT**

COLUMN NAME: **ASPECT_DIRECTION**

CODED? **Yes**

BRIEF DESCRIPTION: **Aspect in written form -- Region 6 only**

DEFINITION:

The direction towards which a slope faces within the area of the subplot. Provides physiographic information about the condition. The aspect is coded as a descriptive word (i.e. West, Northeast), that corresponds to the azimuth in degrees. Only available in R6 and BLMWO inventories.

PNW - FIA I D B Column Definitions PNW - FIA

TABLE NAME: **SUBPLOT**

COLUMN NAME: **COND_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Condition class code**

DEFINITION:

A numeric code that identifies an individual condition class on the subplot. Condition classes are defined by differences in land class (forest, non-forest), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), owner, or other situations that occur across the plot area. The condition in the center of subplot 1 is recorded as condition class #1 in most inventories, and the rest of the conditions are numbered sequentially as they are encountered on the subplot or plot. Because plots are installed in specific locations and each subplot is installed in fixed positions, it is possible for subplots to straddle condition boundaries. When this occurs, the boundaries are mapped and specific details are recorded for each condition. The condition class code is recorded with every piece of information associated with that particular condition. At the data compilation level, if more than one condition exists, the plot is effectively partitioned into "condition class plots" resulting in more than one record for each plot. Classifications and summaries are made at the condition class level, where data collected within each condition class are essentially considered and treated as a plot.

Because the IDB consists of data from a variety of inventory designs, condition class assignments were handled in slightly different ways. In the FIACA, FIAEO, and FIAWO inventories, multiple conditions were recorded in the field on each subplot (if present). In the FIAEW, FIAWW, R5, R6, and BLM inventories, only one condition class was identified on each subplot (the entire subplot area was assigned the same condition number).

The Region 6 and BLMWO inventories did not record condition classes in the field, so the IDB staff developed a procedure to identify broad condition classes in the office. The procedure was based on information contained in the plant association code, which field crews recorded on each subplot. Please refer to the Technical Documentation for a detailed description of the condition class procedure. In general, the Series codes (1st 2 letters in the plant association code) were evaluated to determine whether the subplot was forest or non-forest. All non-forest Series were lumped into one condition class with a ground land class (see GLC definition) code of 60. Forest plant associations were further divided into softwood or hardwood forests, and finally assigned a condition class based on the 2nd letter of the Series code which identifies the dominant potential vegetation (species). Using this algorithm, we were able to assign a condition class code to each subplot.

The Region 5 inventory recorded condition classes in the field and were based on differences in land class or broad differences in forest type, stand size, stand origin or stand density. R5 staff provided condition class codes for the IDB.

The PNW-FIA inventories identified condition classes in the field. Conditions were defined as a distinct land class (timberland, oak woodland, nonforest, etc), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), or an area that was out of the sampled inventory area (i.e. outside the state or in a reserved area). Subplots that straddle condition class boundaries were mapped and a proportion was estimated for the amount of the subplot area within each condition. The condition identified at the center of subplot #1 was always labeled as condition class '1'. When a condition class was not associated with any subplot center (such as a road that crosses the outer portion of one subplot) it is called a "sliver". To classify an area as a different condition based on the vegetation composition (forest stand), the area must be at least 2.5 ha in size and at least

35m wide. These conditions are often associated with changes in physioclass such as: (a) steep north slope vs. steep south slope; (b) swampy flat vs. well-drained upland; or (c) deep-soiled flat vs. thin-soiled upland. In addition, a new condition would be recorded when crossing the boundary between pure hardwood to pure softwood, from regeneration to sawtimber stands, poorly stocked to well-stocked stands, or from uncut to partially harvested areas. To classify an area as a different condition based on the land class, the area on the subplot must be at least .4 hectares in size and 35 meters wide.

TABLE NAME:	COLUMN NAME:	CODED? **No**
SUBPLOT	**COND_ID**	

BRIEF DESCRIPTION: **Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Condition Class (COND) table. COND_ID is a key field, used to join the SUBPLOT table to the COND table to access data and information about the condition class.

TABLE NAME: **SUBPLOT**

COLUMN NAME: **COND_WT_SUBPLOT**

CODED? **No**

BRIEF DESCRIPTION: **The proportion of the subplot area in the condition.**

DEFINITION:

The condition weight on the subplot is the percent of the subplot area occupied or covered by the current condition. This weight is converted to a proportion and averaged across subplots to derive an estimate for the proportion of the condition class on the plot (in the COND table, column COND_WT).

See the column definition for COND_CLASS and COND_WT for more explanation.

TABLE NAME: **SUBPLOT**

COLUMN NAME: **DATA_SOURCE**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies the source of the inventory data**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from nine different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by five individual forest inventory programs from two agencies, including the Forest Inventory and Analysis program of the Pacific Northwest Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, the Natural Resource Inventory program of the Bureau of Land Management in western Oregon and the Interior West Forest Inventory and Analysis Program of the Rocky Mountain Research Station. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Rocky Mountain Research Station's Interior West FIA unit inventoried small pieces of Washington (Kaniksu NF) and California (Toiyabe NF) and are coded RMRS.

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME: **SUBPLOT**

COLUMN NAME: **FIELD_SUBPLOT_NUMBER**

CODED? **No**

BRIEF DESCRIPTION: **Original subplot number recorded in the field on FIA plots**

DEFINITION:

A number identifying the individual subplot location (point) in the plot cluster. FIA subplots only.

TABLE NAME: **SUBPLOT**

COLUMN NAME: **LIVE_TREES_PRESENT_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Code indicating whether live trees were sampled on this condition**

DEFINITION:

This column indicates if live trees were present and tallied in the current condition on the subplot. Some forest subplots have very low or no tree tally because the area was harvested, has inherently low productivity, or for some other valid reason. In these situations, this column would be coded as 'N'. This column is useful when questions arise about the lack of tree data in the TREE_LIVE or TREE_MORT tables and the plot is classified as forest land. If coded as 'N' it essentially confirms that the plot was visited but no tally was recorded.

TABLE NAME:	COLUMN NAME:	CODED? **No**
SUBPLOT	**NONSTK_NONFOR_AREA_PCT**	

BRIEF DESCRIPTION: **Percent of nonstockable area on the subplot.**

DEFINITION:

The percent of the area that is not stockable with trees because of physical limitations of the site. The area could have large boulders, shallow soils, water, etc. where trees are not able to grow. This column is used to adjust the mean annual increment estimates and stocking estimates for trees in the condition.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
SUBPLOT	**PLANT_ASSOC_CODE**	

BRIEF DESCRIPTION: **Plant association code**

DEFINITION:
Identifies the plant association that describes the area within each subplot's boundaries. This data is only available for subplots in the Region 6 and BLMWO inventories.
In other inventories, plant association is recorded for the condition class and is stored in the COND table.

The plant association is a classification system that describes the series, subseries, and association for vegetation within a given area. The codes are 6-digit and alphanumeric, and include information on major tree species, life form, seral status, and structure. The plant association identifies the potential natural vegetation and community. Plant association in the R6 and BLMWO inventories was used to identify condition classes on the plot and to assign average site index values when site trees were missing. Condition classes were assigned in the office, with an algorithm that evaluated the plant association code.

Please see the Technical Documentation for details on the use of plant association codes to derive condition class, site index, and ground land class for R6 and BLMWO inventories.

For more information, see the primary reference document: Pacific Northwest ecoclass codes for seral and potential natural communities, by Fred Hall, General Technical Report PNW-GTR-418, 1998.

For R6 plots in southwest Oregon, a different plant association classification system was used. This system was developed by Tom Atzet. The codes are identified with an X in front of the them.

Please refer to the crosswalk table IDB_PLANT_ASSOCIATIONS for the plant association name that corresponds to each code.

TABLE NAME: **SUBPLOT**

COLUMN NAME: **SLOPE**

CODED? **Yes**

BRIEF DESCRIPTION: **Average slope on the subplot**

DEFINITION:
A slope is recorded for each subplot that describes the majority of the area within the subplot. Percent slope for each subplot is only available for R6 and BLMWO inventories.

The code indicates the percent slope of the area, recorded in 10-percent classes.

TABLE NAME: **SUBPLOT**

COLUMN NAME: **SUBPLOT_CENTR_COND_YN**

CODED? **No**

BRIEF DESCRIPTION: **Indicates whether the condition crosses the center of the subplot.**

DEFINITION:

Indicates whether the current condition crosses the center of the subplot. This column is used mainly for data processing. Because R5, R6, BLMWO, FIAEW, and FIAWW inventories assigned one condition to the entire subplot, this column will always be "Y". In other FIA inventories, multiple conditions are possible on one subplot. Conditions that do not cover or include the center point of the subplot are coded as "N".

TABLE NAME:	COLUMN NAME:	CODED? **No**
SUBPLOT	**SUBPLOT_ID**	

BRIEF DESCRIPTION: **Subplot ID: Unique number assigned to each row in the subplot table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Subplot table. ID is a key field, used to join other tables in the database.

This ID is different from the SUBPLOT_NUM column, which contains the original number for the subplot or point location (i.e. 1 to 10).

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
SUBPLOT	**SUBPLOT_NUM**	

BRIEF DESCRIPTION: **Subplot number on the plot**

DEFINITION:
A number identifying the individual subplot location (point) in the plot cluster. Plots have a maximum of 5 subplots.For FIA subplots, the original subplot number recorded in the field is stored in FIELD_SUBPLOT_NUMBER.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **ALLTREE_ID**

CODED? **No**

BRIEF DESCRIPTION: **A unique code which identifies every tree (live or dead) in the database**

DEFINITION:

A sequential number which uniquely identifies each individual tree (live and dead) in the entire database. This number allows users to combine live and dead trees if desired, and still retain a unique ID for the new table. This number also allows for easy tracking of dead trees because a tree in the mortality table will also be in the dead tree table. It also tracks live trees which are site trees in the SITE table.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BA_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area in square feet**

DEFINITION:
The basal area of a tree is the cross-sectional area of the tree stem at the point where DBH is measured, in square feet. Calculated for all dead trees >=1" (2.5cm) dbh. This estimate of basal area includes bark if present.

Basal area per tree is calculated as follows:
BA_FT2 = .005454 * DBH_IN**2

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BA_FT2_AC**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area, square feet per acre**

DEFINITION:

The amount of basal area a tree represents per acre in the condition class on the plot, in square feet per acre. Calculated for all dead trees >=1" (2.5cm) dbh.

Tree basal area is the cross-sectional area of the tree stem at the point where DBH is measured, and includes bark if present.

Basal area per acre is calculated as follows:

BA_FT2_AC = BA_FT2 * TPA

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BA_M2**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area in square meters**

DEFINITION:
The basal area of a tree is the cross-sectional area of the tree stem at the point where DBH is measured, in square meters. Calculated for all dead trees >=1" (2.5cm) dbh. This estimate of basal area includes bark.

Basal area per tree is calculated as follows:

BA_M2 = .00007854 * DBH_CM**2

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BA_M2_HA**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area, square meters per hectare**

DEFINITION:

The amount of basal area a tree represents per hectare in the condition class on the plot, in square meters per hectare. Calculated for all dead trees >=1" (2.5cm) dbh.

Tree basal area is the cross-sectional area of the tree stem at the point where DBH is measured, and includes bark.

Basal area per hectare is calculated as follows:

BA_M2_HA = BA_M2 * TPH

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BIOM_AC_LBS**

CODED? **No**

BRIEF DESCRIPTION: **Biomass (oven-dry weight) of the total tree stem, pounds per acre**

DEFINITION:

The biomass of the total tree stem is the oven-dry weight of the entire tree stem from the ground to the actual top of the tree, in lbs/acre. The top is either the point where the tree has broken off or the natural tip of the tree if it is fully intact. For dead trees, the top can range from 1 foot tall to hundreds of feet tall.

Wood biomass is estimated by converting cubic volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water).
Once biomass is calculated it is reduced by a decay class reduction factor (DCR_SNAG) to reflect changes in weight as a dead tree decays. Conversion to a per acre estimate is done by multiplying the biomass per tree times the trees per acre.

BIOM_AC_LBS =BIOM_TR_LBS * TPA

Biomass/acre can be expanded by the acres per condition to produce an estimate of biomass for the inventory (population totals for summary tables). The total biomass that the tree represents in the inventory, is calculated as follows:
Total biomass = BIOM_AC_LBS * ACRES_VOL

Please refer to these column definitions for more details:
BIOM_TR_LBS, BIOM_WOOD_DENS, BIOM_WOOD_SPEC_GRAV, DCR_SNAG

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BIOM_HA_KG**

CODED? **No**

BRIEF DESCRIPTION: **Biomass (oven-dry weight) of the total stem, in kilograms per hectare**

DEFINITION:

The biomass of the total tree stem is the oven-dry weight of the entire tree stem from the ground to the actual top of the tree, in kg/ha. The top is either the point where the tree has broken off or the natural tip of the tree if it is fully intact. For dead trees, the top can range from less than a meter tall to over 50m tall.

Wood biomass is estimated by converting cubic volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water).
Once biomass is calculated it is reduced by a decay class reduction factor (DCR_SNAG) to reflect changes in weight as a dead tree decays. Conversion to a per hectare estimate is done by multiplying the biomass per tree times the trees per hectare.

BIOM_HA_KG =BIOM_TR_KG * TPH

Biomass/hectare can be expanded by the hectares per condition to produce an estimate of biomass for the inventory (population totals for summary tables). The total biomass that the tree represents in the inventory, is calculated as follows:
Total biomass = BIOM_HA_KG * ACRES_VOL *.4047

Please refer to these column definitions for more details:
BIOM_TR_KG, BIOM_WOOD_DENS, BIOM_WOOD_SPEC_GRAV, DCR_SNAG
See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BIOM_TR_KG**

CODED? **No**

BRIEF DESCRIPTION: **Biomass (oven-dry weight) of the individual tree, in kilograms**

DEFINITION:

The biomass of the total tree stem is the oven-dry weight of the entire tree stem from the ground to the actual top of the tree, in kilograms. The top is either the point where the tree has broken off or the natural tip of the tree if it is fully intact. For dead trees, the top can range from less than a meter tall to over 50m tall. This column has not been expanded to the per-hectare level.

Wood biomass is estimated by converting cubic volume estimates for the tree into dry weight, using the value of specific gravity for a given species. Once biomass is calculated it is reduced by a decay class reduction factor (DCR_SNAG) to reflect changes in weight as a dead tree decays.

BIOM_WOOD_SPEC_GRAV has no units.
The 1000 in the equation is 1000 kg/m3

BIOM_TR_KG = VOL_TR_M3 * 1000 * BIOM_WOOD_SPEC_GRAV * DCR_SNAG

Please refer to these column definitions for more details:
BIOM_WOOD_DENS, BIOM_WOOD_SPEC_GRAV, DCR_SNAG

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BIOM_TR_LBS**

CODED? **No**

BRIEF DESCRIPTION: **Biomass (oven-dry weight) of the individual tree, in pounds**

DEFINITION:

The biomass of the total tree stem is the oven-dry weight of the entire tree stem from the ground to the actual top of the tree, in pounds. The top is either the point where the tree has broken off or the natural tip of the tree if it is fully intact. For dead trees, the top can range from 1 foot tall to hundreds of feet tall. This column has not been expanded to the per-acre level.

Wood biomass is estimated by converting cubic volume estimates for the tree into dry weight, using using a wood density factor (derived from the specific gravity of wood and weight of water) for a given species. Once biomass is calculated it is reduced by a decay class reduction factor (DCR_SNAG) to reflect changes in weight as a dead tree decays.

BIOM_TR_LBS = VOL_TR_FT3 * BIOM_WOOD_DENS (lbs/ft3) * DCR_SNAG

where BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3

To convert this estimate to tons: BIOM_TR_LBS * .0005 tons/lb

Please refer to these column definitions for more details:
BIOM_WOOD_DENS, BIOM_WOOD_SPEC_GRAV, DCR_SNAG

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BIOM_WOOD_DENS**

CODED? **No**

BRIEF DESCRIPTION: **Density of wood for a species, in pounds/cubic foot.**

DEFINITION:

Wood density is a factor used to convert tree volume to biomass. It is an estimate of the oven dry weight (in pounds) of wood fiber per cubic foot of tree volume.

Wood density is calculated from the specific gravity of the wood and the weight of water as follows:
BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3
where 62.4 is the weight of water, and BIOM_WOOD_SPEC_GRAV = the specific gravity of the wood for a given species.

Specific gravity is the ovendry weight of a piece of green wood divided by the weight of water displaced by the wood. Specific gravity has no units.

Values for specific gravity for most species were obtained from the Wood Handbook: Wood as an Engineering Material, Forest Products Laboratory, Agriculture Handbook #72, 1987, Table 4-2. Species that were not listed in this Handbook were assigned a specific gravity from a similar species.

Biomass is estimated by multiplying the wood density by the cubic volume of the down log, which results in the ovendry weight in pounds of wood fiber. This weight can then be easily converted to tons by multiplying by .0005 tons/lb or to kilograms by .4536 kg/lb.

If the down log has a decay class of 2-5, the biomass will be reduced to reflect an estimate of decomposition over time. Please see the column DCR_SNAG for information on the decay class reduction factor.

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **BIOM_WOOD_SPEC_GRAV**

CODED? **No**

BRIEF DESCRIPTION: **Specific gravity of wood for a given species**

DEFINITION:

Specific gravity is the ovendry weight of a piece of green wood divided by the weight of water displaced by the wood. It is used to calculate wood density which in turn is used to estimate the biomass of the tree bole. Specific gravity has no units.

Values for specific gravity for most species were obtained from the Wood Handbook: Wood as an Engineering Material, Forest Products Laboratory, Agriculture Handbook #72, 1987, Table 4-2. Species that were not listed in this Handbook were assigned a specific gravity from a similar species.

Specific gravity is used to estimate wood density as follows:

BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3
where 62.4 is the weight of water.

Biomass is estimated by multiplying the wood density by the cubic volume of the down log, which results in the ovendry weight in pounds of wood fiber. This weight can then be easily converted to tons by multiplying by .0005 tons/lb or to kilograms by .4536 kg/lb.

See these column definitions for more details:
BIOM_WOOD_DENS

See the IDB_TREE_SPECIES table for the specific gravity and wood density values assigned to each tree species. Also refer to "TREE SPECIES AND SPECIFIC GRAVITY.doc" in the Technical Documentation folder on the CD.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **CARBON_AC_LBS**

CODED? **no**

BRIEF DESCRIPTION: **The amount of carbon per acre the dead tree represents, in pounds/acre**

DEFINITION:

An estimate of the weight or mass of carbon stored in the dead tree on a per-acre basis, in lbs/ac. Biomass per acre and the carbon conversion factor (CARBFAC) are used to calculate this variable.

CARBON_AC_LBS = BIOM_AC_LBS * CARBFAC

where CARBFAC is a rather general conversion factor based on hardwood or softwood species as follows:
For Softwoods: CARBFAC= .521
For Hardwoods: CARBFAC= .491
For unknowns: CARBFAC= .506

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **CARBON_HA_KG**

CODED? **No**

BRIEF DESCRIPTION: **The amount of carbon per hectare the dead tree represents, In kilograms per hectare**

DEFINITION:
An estimate of the weight or mass of carbon stored in the dead tree on a per-hectare basis, in kg/ha. Biomass per hectare and the carbon conversion factor (CARBFAC) are used to calculate this variable.

CARBON_HA_KG = BIOM_HA_KG * CARBFAC

where CARBFAC is a rather general conversion factor based on hardwood or softwood species as follows:
For Softwoods: CARBFAC= .521
For Hardwoods: CARBFAC= .491
For unknowns: CARBFAC= .506

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **CNTY**

CODED? **Yes**

BRIEF DESCRIPTION: **County code**

DEFINITION:

A numeric code which identifies the county where the field plot is located. County codes are unique within a state. See the code definitions for a list of counties and their text names. Use the table IDB_COUNTY_NAMES to use names of counties in queries.

CNTY should not be used to link tables. Use COND_ID which is a unique identifier

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **COND_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Condition class code**

DEFINITION:

A numeric code that identifies an individual condition class on a plot. Condition classes are defined by differences in land class (forest, non-forest), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), owner, or other situations that occur across the plot area. The condition in the center of subplot 1 is recorded as condition class #1 in most inventories, and the rest of the conditions are numbered sequentially as they are encountered on the subplot or plot. Because plots are installed in specific locations and each subplot is installed in fixed positions, it is possible for subplots to straddle condition boundaries. When this occurs, the boundaries are mapped and specific details are recorded for each condition. The condition class code is recorded with every piece of information associated with that particular condition. At the data compilation level, if more than one condition exists, the plot is effectively partitioned into "condition class plots" resulting in more than one record for each plot. Classifications and summaries are made at the condition class level, where data collected within each condition class are essentially considered and treated as a plot.

Because the IDB consists of data from a variety of inventory designs, condition class assignments were handled in slightly different ways. In the FIACA, FIAEO, and FIAWO inventories, multiple conditions were recorded in the field on each subplot (if present). In the FIAEW, FIAWW, R5, R6, and BLM inventories, only one condition class was identified on each subplot (the entire subplot area was assigned the same condition number).

The Region 6 and BLMWO inventories did not record condition classes in the field, so the IDB staff developed a procedure to identify broad condition classes in the office. The procedure was based on information contained in the plant association code, which field crews recorded on each subplot. Please refer to the Technical Documentation for a detailed description of the condition class procedure. In general, the Series codes (1st 2 letters in the plant association code) were evaluated to determine whether the subplot was forest or non-forest. All non-forest Series were lumped into one condition class with a ground land class (see GLC definition) code of 60. Forest plant associations were further divided into softwood or hardwood forests, and finally assigned a condition class based on the 2nd letter of the Series code which identifies the dominant potential vegetation (species). Using this algorithm, we were able to assign a condition class code to each subplot.

The Region 5 inventory recorded condition classes in the field and were based on differences in land class or broad differences in forest type, stand size, stand origin or stand density. R5 staff provided condition class codes for the IDB.

The PNW-FIA inventories identified condition classes in the field. Conditions were defined as a distinct land class (timberland, oak woodland, nonforest, etc), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), or an area that was out of the sampled inventory area (i.e. outside the state or in a reserved area). Subplots that straddle condition class boundaries were mapped and a proportion was estimated for the amount of the subplot area within each condition. The condition identified at the center of subplot #1 was always labeled as condition class '1'. When a condition class was not associated with any subplot center (such as a road that crosses the outer portion of one subplot) it is called a "sliver". To classify an area as a different condition based on the vegetation composition (forest stand), the area must be at least 2.5 ha in size and at least

35m wide. These conditions are often associated with changes in physioclass such as: (a) steep north slope vs. steep south slope; (b) swampy flat vs. well-drained upland; or (c) deep-soiled flat vs. thin-soiled upland. In addition, a new condition would be recorded when crossing the boundary between pure hardwood to pure softwood, from regeneration to sawtimber stands, poorly stocked to well-stocked stands, or from uncut to partially harvested areas. To classify an area as a different condition based on the land class, the area on the subplot must be at least .4 hectares in size and 35 meters wide.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_DEAD	**COND_ID**	

BRIEF DESCRIPTION: **Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Condition Class (COND) table. COND_ID is a key field, used to join the TREE_DEAD table to the COND table.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **DATA_SOURCE**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies the source of the inventory data.**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from eight different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by four individual forest inventory programs from two agencies, including the Forest Inventory and Analysis programs of the Pacific Northwest Research Station and the Intermountain Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, and the Natural Resource Inventory program of the Bureau of Land Management in western Oregon. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The PNW FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Intermountain FIA program (RMRS) conducted inventories for regions 1 and 4; these regions have small acreages that extend into Washington (Kaniksu) and California (Toiyabe).

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **DBH_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Diameter class for the tree**

DEFINITION:

Each tree is assigned to a 2-inch diameter class based on it's dbh. Classes identify 2-inch classes from 1.0 - 2.9 to 47.0 - 48.9, with the final class being > 48.9 inches. This column contains the actual text describing the diameter class (i.e. 9.0 - 10.9) and is useful when creating reports or other summaries.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **DBH_CM**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height, in centimeters**

DEFINITION:

Diameter at breast height (dbh) is the diameter of the tree bole, in centimeters, measured at a point that is 1.37 meters above the forest floor, on the uphill side of the tree. A diameter is recorded for all trees.

Note for R5 and RMRS: The diameter recorded here is measured at the root collar (DRC) for the woodland species.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **DBH_IN**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height, in inches**

DEFINITION:

Diameter at breast height (dbh) is the diameter of the tree bole, in inches, measured at a point that is 4.5 feet above the forest floor, on the uphill side of the tree. A diameter is recorded for all trees.

Note for R5 and RMRS: The diameter recorded here is measured at the root collar (DRC) for the woodland species.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **DCR_SNAG**

CODED? **No**

BRIEF DESCRIPTION: **Decay class reduction factor**

DEFINITION:

This factor is used to reduce the biomass of wood in decay classes 2,3,4, and 5. The specific gravity of wood decreases as a tree decays, which reduces the weight as it decomposes from a solid intact bole (decay class 1) to a rotten, heavily decayed stage (decay class 5).

This calculation has been applied to all biomass estimates in the IDB. In general, calculate the estimate as follows: Biomass estimate * DCR_SNAG = adjusted weight of the tree.

The DCR_SNAG varies by decay class and broad species group. Note that the decay classes recorded in the field are used to assign a DCR to a log. Please see the DECAY definitions for more information.

DECAY_SNAG = 1 then DCR_SNAG=1.0 (no reduction of biomass)

DECAY_SNAG=2 and TREE_SPECIES_GROUP ="HW" then DCR_SNAG=.78
DECAY_SNAG=2 and TREE_SPECIES_GROUP ="SW" then DCR_SNAG=.84
DECAY_SNAG=2 and TREE_SPECIES_GROUP ="UNK" then DCR_SNAG=.81

DECAY_SNAG=3 and TREE_SPECIES_GROUP ="HW" then DCR_SNAG=.45
DECAY_SNAG=3 and TREE_SPECIES_GROUP ="SW" then DCR_SNAG=.71
DECAY_SNAG=3 and TREE_SPECIES_GROUP ="UNK" then DCR_SNAG=.58

DECAY_SNAG=4 and TREE_SPECIES_GROUP ="HW" then DCR_SNAG=.42
DECAY_SNAG=4 and TREE_SPECIES_GROUP ="SW" then DCR_SNAG=.45
DECAY_SNAG=4 and TREE_SPECIES_GROUP ="UNK" then DCR_SNAG=.44

DECAY_SNAG=5 and TREE_SPECIES_GROUP ="HW" then DCR_SNAG=.42
DECAY_SNAG=5 and TREE_SPECIES_GROUP ="SW" then DCR_SNAG=.45
DECAY_SNAG=5 and TREE_SPECIES_GROUP ="UNK" then DCR_SNAG=.44

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **DECAY_SNAG**

CODED? **Yes**

BRIEF DESCRIPTION: **The decay class of the tree recorded in the field**

DEFINITION:
DECAY_SNAG classifies the stage of decay of each dead tree, using a 5-class rating system.

The 5-class system (modified from Cline et.al. 1980) has the following brief descriptions:

Decay class 1
Structural integrity: Sound ; Wood Texture: Intact, no rot;Conks on stem absent; Wood Color: original color; Presence of invading roots: absent; Condition of branches & twigs:If branches are present, fine twigs are still attached with tight bark.

Decay class 2
Structural integrity: Heartwood sound; Sapwood somewhat decayed ; Wood Texture: Mostly intact; Sapwood partly soft and starting to decay. Wood cannot be pulled apart by hand; Wood Color: original color; Presence of invading roots: absent; Condition of branches & twigs: If branches are present, many fine twigs are gone. Fine twigs still present have peeling bark.

Decay class 3
Structural integrity: Heartwood sound; log supports its weight; Wood Texture: Large, hard pieces sapwood can be pulled apart by hand; Wood Color:red-brown or original color; Presence of invading roots: present in sapwood only; Condition of branches & twigs: Large branch stubs will not pull out.

Decay class 4
Structural integrity: Heartwood rotten; log does not support its weight, but shape is maintained; Wood Texture: Soft, small, blocky pieces; metal pin can push apart heartwood; Wood Color: red-brown or light brown; Presence of invading roots: present throughout log; Condition of branches & twigs: Large branch stubs pull out easily.

Decay class 5
Structural integrity: None; branch stubs and pitch pockets have rotted away; Wood Texture: Soft; powdery when dry; Wood Color: Red-brown to dark brown; Presence of invading roots: roots through-out; Condition of branches & twigs:none.

For more information refer to the field manuals on the CD.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **FIA_LINENUM**

CODED? **No**

BRIEF DESCRIPTION: **Unique number for each line or record of an FIA plot**

DEFINITION:

This line number was taken directly from the original FIA databases, allowing users to connect back to these databases if necessary. Each tree recorded on a plot has a unique line number on that plot.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **FOREST_OR_BLM_DISTRICT**

CODED? **Yes**

BRIEF DESCRIPTION: **Administrative National Forest code**

DEFINITION:

A numeric code for the National Forest or BLM district where the field plot is located. Region 5 has 18 individual National Forests, Region 6 has 19 National Forests, and the BLM has 6 districts in western Oregon. Inventories are generally organized and compiled by Forest or BLM district. In addition there is one forest in Region 1 in Washington and one forest in Region 4 in California.

The FOREST_OR_BLM_DISTRICT code combined with CNTY and PLOT (plot number) uniquely identify each plot location in the R5 data source. For R6 and BLMWO as well as RMRS data sources the plot number is unique. However, it is recommended that the plot ID column in this table be used to uniquely identify every plot in the database, because FIA inventories require state and county along with plot number to be unique. The PLOT_ID column gets rid of the need to include multiple columns to uniquely identify a plot.

The FOREST_OR_BLM_DISTRICT column is blank for FIA inventories.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **HT_ACTUAL_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **Method used to estimate actual tree height**

DEFINITION:

A code indicating whether a dead tree had the actual height measured in the field or estimated from equations. Most Actual Heights were measured.

If a tree was fully intact, with a full top R5, R6, and BLMWO did not measure the height in the field. Instead, the height was estimated with national FVS equations, which estimate the total height of a tree from ground to normally formed tip. These equations were specific to the National Forests, FVS Variant and species and required dbh as an input.

Refer to HT_ACTUAL_FT or HT_ACTUAL_M for more information on heights.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **HT_ACTUAL_FT**

CODED? **No**

BRIEF DESCRIPTION: **Actual tree height, in feet**

DEFINITION:

Actual height is the distance from the base of the tree (on the uphill side) to the highest point, which is either the tip of the tree (if intact) or the point where the top is missing. Actual height represents the true, observed height in the field and is the correct height to use for most anayses of dead tree data (versus total height).

For R5, R6, and BLMWO all measured heights were actual height, not total height. For R6 and BLMWO, actual heights were measured on dead trees >= 3" dbh that HAD broken or missing tops. No heights were measured or field-estimated on all other normally-formed, intact dead trees. These trees had total heights estimated with FVS equations. In this case, actual height = total height.

For FIA, actual height was measured on every dead tree in the TREE_DEAD table. Total heights were only estimated on recent mortality trees. Total height was not estimated with equations on other dead trees because equations were not available or did not apply to FIA.

Actual height was not recorded for data source = RMRS.

Heights were used in estimating volume of the tree bole.

The method used to estimate height is coded in the column HT_ACTUAL_EST_METHOD on each tree record.

Please refer to the technical documentation for a description of the volume equations.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **HT_ACTUAL_M**

CODED? **No**

BRIEF DESCRIPTION: **Actual tree height, in meters**

DEFINITION:

Actual height is the distance from the base of the tree (on the uphill side) to the highest point, which is either the tip of the tree (if intact) or the point where the top is missing. Actual height represents the true, observed height in the field and is the correct height to use for most anayses of dead tree data (versus total height).

For R5, R6, and BLMWO all measured heights were actual height, not total height. For R6 and BLMWO, actual heights were measured on dead trees >= 3" dbh that HAD broken or missing tops. No heights were measured or field-estimated on all other normally-formed, intact dead trees. These trees had total heights estimated with FVS equations. In this case, actual heights = total heights. For trees with a dbh < 3", a total height was estimated with equations, and assigned to the actual height column as well.

For FIA, actual height was measured on every dead tree in the TREE_DEAD table. Total heights were only estimated on recent mortality trees. Total height was not estimated with equations on other dead trees because equations were not available.

Actual height was not recorded for data source = RMRS.

Heights were used in estimating volume of the tree bole.

The method used to estimate height is coded in the column HT_ACTUAL_EST_METHOD on each tree record.

Please refer to the technical documentation for a description of the volum

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **HT_TOTAL_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **Method used to estimate total tree height**

DEFINITION:

A code indicating whether a dead tree had the total height measured in the field or estimated from equations. All total heights from R5, R6, and BLMWO inventories were estimated with equations. These equations were specific to the National Forests, FVS Variant and species and required dbh as an input. FIA only estimated total heights on dead trees that were recent mortality. Total height is not available for all other dead PNW FIA trees. The RMRS FIA only recorded total heights and did not record actual heights.

Heights of dead trees were either measured in the field, visually estimated in the field at the previous inventory, or estimated in the office with equations at the previous inventory.

Total height is only needed to estimate volume with taper equations. If total height is not available, the equation can use actual height alone.

Refer to HT_TOTAL_FT or HT_TOTAL_M for more information on heights, and the technical documentation for volume estimation methods.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **HT_TOTAL_FT**

CODED? **No**

BRIEF DESCRIPTION: **Total height of the tree, in feet**

DEFINITION:

The total height of a tree, either measured or estimated, in feet. Total height is the distance from the base of the tree (on the uphill side) to the top of the terminal leader. Heights were either measured in the field, visually estimated in the field, or estimated in the office with equations.

NOTE: Total height is not the appropriate height to use for most analyses of dead tree data. The majority of total heights were estimated from equations and were only used as an input to the taper volume equations for the trees. ACTUAL height is the right height to use because it reflects the real height of the tree.

Total heights for all dead trees in the R5, R6, and BLMWO inventories were calculated with the national FVS height estimation equations. These equations were specific to the FVS variant and species and required dbh as an input. If actual height was not measured in these inventories, it was assumed to be fully intact and it was estimated with equations in the office. In this case, actual height and total height will be equal. For FIA, total heights were only estimated on recent mortality trees. For RMRS total heights were measured or estimated on all dead trees, and actual heights were not recorded.

The method used to estimate heights is coded in the column HT_TOTAL_EST_METHOD.

Please refer to the technical documentation for more information on height and volume estimation of dead trees.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **HT_TOTAL_M**

CODED? **No**

BRIEF DESCRIPTION: **Total height of the tree, in meters**

DEFINITION:

The total height of a tree, either measured or estimated, in meters. Total height is the distance from the base of the tree (on the uphill side) to the top of the terminal leader. Heights were either measured in the field, visually estimated in the field, or estimated in the office with equations.

NOTE: Total height is not the appropriate height to use for most analyses of dead tree data. The majority of total heights were estimated from equations and were only used as an input to the taper volume equations for the trees. Actual height is the right height to use because it reflects the real height of the tree.

Total heights for all dead trees in the R5, R6, and BLMWO inventories were calculated with the national FVS height estimation equations. These equations were specific to the FVS Variant and species and required dbh as an input. If actual height was not measured in these inventories, it was assumed to be fully intact and it was estimated with equations in the office. In this case, actual height and total height will be equal. For FIA, total heights were only estimated on recent mortality trees. For RMRS total heights were measured or estimated on all dead trees, and actual heights were not recorded.

The method used to estimate heights is coded in the column HT_TOTAL_EST_METHOD.

Please refer to the technical documentation for more information on height and volume estimation for dead trees.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **PLOT**

CODED? **No**

BRIEF DESCRIPTION: **Original plot number**

DEFINITION:

The original numeric code that identified the individual field plot location for a given inventory (data source). This is the number used by field crews and office staff to identify all materials and information for that plot while compiling and executing the inventory. Some plot numbers are unique within a Forest and others are unique in the entire regional inventory. In FIA inventories most plot numbers are unique within a state and county.

Because of this variability in uniqueness from the many data sources in this database, it is recommended that the column PLOT_ID be used to uniquely identify every plot location in this database. ID is unique across all data sources and all inventories.

The column PLOT is useful to link to other databases that only contain the original plot number as an identifier.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **PLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique number assigned to each plot row in the entire PLOT table, [Key field]**

DEFINITION:

A sequential number which uniquely identifies each plot (row) in the entire PLOT table. This number is a key field used when joining the COND table to the PLOT table.

It is recommended that PLOT_ID be used when summarizing or grouping data by plot, because the original plot numbers (PLOT) are not unique in the database. For example, in FIA data, a plot number is unique within state and county, and in R5 and R6 it is unique within region and national forest.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **PLOT_SIZE**

CODED? **Yes**

BRIEF DESCRIPTION: **Size of the plot**

DEFINITION:

The size of the plot where the tree was sampled. There are many plot sizes used in the inventory designs of each DATA_SOURCE. Most plots are nested within each other. Sizes ranged from small fixed radius plots to variable radius plots. Plot sizes differed based on the component of the forest being measured.

See the code definitions for a description of each plot size code and the technical documentation called "TPA_TPH_Calculations.doc" which requires information on plot size to calculate the appropriate TPA or TPH.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **SNAG_WILDLIFE_USE**

CODED? **yes**

BRIEF DESCRIPTION: **Wildlife use code**

DEFINITION:
A code indicating whether the dead tree has cavities or excavations -- a sign that wildlife may be using the tree for cover or nesting.

1 = Excavations, cavities, or dens present
2 = Excavations, cavities, or dens are NOT present
9 = This data was not recorded in the field

R5 did not record codes for wildlife use.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **SUBPLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique row number in the SUBPLOT table**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Subplot (SUBPLOT) table. SUBPLOT_ID is a key field, used to join this table to the SUBPLOT table.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **SUBPLOT_NUM**

CODED? **Yes**

BRIEF DESCRIPTION: **Subplot number on the plot**

DEFINITION:

A number identifying the individual subplot location (point, stake position) in the plot cluster. Plots have a maximum of 5 subplots. For FIA subplots, the original subplot number recorded in the field is stored in the SUBPLOT table and called FIELD_SUBPLOT_NUMBER.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TPA**

CODED? **No**

BRIEF DESCRIPTION: **Trees per acre**

DEFINITION:

Trees per acre is the number of trees that one individual tally tree represents per acre in the condition class. TPA is calculated by averaging the subplot-level trees per acre (TPA_SUBPLOT) across the subplots in one condition as follows:

For one tree in one condition:
TPA= (TPA_SUBPLOT) / (SUBPLOT_COUNT_COND)

where SUBPLOT_COUNT_COND is the total number of subplots in the condition class. For FIA inventories where subplots might be split between conditions, this value includes whole and partial subplots. For R5, RMRS in CA, R6, BLMWO only one condition is assigned to the entire subplot, so this value is a count of whole subplots in one condition.

** Note that by dividing the TPA_SUBPLOT by the count of subplots in one condition, the TPA has essentially been weighted by the proportion of the plot in the condition (or, size of the condition). **

Another way of displaying the calculation above is:
TPA= [(TPA_SUBPLOT) / (Total number of subplots on the plot)] / COND_WT

The trees per acre are used to expand per-tree attributes to a per-acre estimate that the tree represents in the inventory. For example, cubic volume/tree * trees/acre = cubic volume per acre. TPA can be used to summarize tree density by averaging the TPA across conditions in the inventory.

This TPA is used for expanding tree attributes to the condition level, for summary and analysis.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPA and TPA_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, be aware that this TPA is weighted by COND_WT (see "Alternative_Estimation_procedures.doc")

See these columns for more information:
SUBPLOT_COUNT_COND
TPA_SUBPLOT
PLOT_SIZE

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TPA_SUBPLOT**

CODED? **No**

BRIEF DESCRIPTION: **Trees per acre at the subplot level**

DEFINITION:

The number of trees that one individual tally tree represents per acre on the subplot (point or stake position). This TPA has not been averaged across the subplots or across conditions. The calculations are based on either the BAF of variable radius plots or the area of fixed-radius plots (for example, on a 1/20th of an acre subplot, each tree represents 20 trees per acre). This TPA_SUBPLOT is used to calculate TPA at the condition class level, by dividing by the number of subplots in the condition class of the tree.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPA and TPA_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, please review the document "Alternative_Estimation_procedures.doc".

See these columns for more information:
SUBPLOT_COUNT_COND
TPH_SUBPLOT
PLOT_SIZE
TPA

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TPH**

CODED? **No**

BRIEF DESCRIPTION: **Trees per hectare**

DEFINITION:

Trees per hectare is the number of trees that one individual tally tree represents per hectare in the condition class. TPH is calculated by averaging the subplot level trees per acre (TPH_SUBPLOT) across the subplots in one condition as follows:
For one tree in one condition:
TPH= (TPH_SUBPLOT) / (SUBPLOT_COUNT_COND)

where SUBPLOT_COUNT_COND is the total number of subplots in the condition class. For FIA inventories where subplots might be split between conditions, this value includes whole and partial subplots. For R5, RMRS in CA, R6, BLMWO only one condition is assigned to the entire subplot, so this value is a count of whole subplots in one condition.

** Note that by dividing the TPH_SUBPLOT by the count of subplots in one condition, the TPH has essentially been weighted by the proportion of the plot in the condition (or, size of the condition). **

Another way of displaying the calculation above is:
TPH= [(TPH_SUBPLOT) / (Total number of subplots on the plot)] / COND_WT

The trees per hectare are used to expand per tree attributes to a per-hectare estimate that the tree represents in the inventory. For example, volume/tree * trees/hectare = volume per hectare. TPH can be used to summarize tree density by averaging the TPH across conditions in the inventory.

This TPH is used for expanding tree attributes to the condition level, for summary and analysis.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPH and TPH_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, be aware that this TPH is weighted by COND_WT (see "Alternative_Estimation_procedures.doc")

See these columns for more information:
SUBPLOT_COUNT_COND
TPH_SUBPLOT
PLOT_SIZE

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TPH_SUBPLOT**

CODED? **No**

BRIEF DESCRIPTION: **Trees per hectare at the subplot level**

DEFINITION:

The number of trees that one individual tally tree represents per hectare on the subplot (point or stake position). This TPH has not been averaged across the subplots or across conditions. The calculations are based on either the BAF of variable radius plots or the area of fixed-radius plots. This TPH_SUBPLOT is used to calculate TPH at the condition class level, by dividing by the number of subplots in the condition class of the tree.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPH and TPH_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, please review the document "Estimation Procedures GTR 597.pdf".

See these columns for more information:
SUBPLOT_COUNT_COND
TPA_SUBPLOT
PLOT_SIZE
TPH

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TREE_COUNT**

CODED? **No**

BRIEF DESCRIPTION: **The number of dead saplings counted on a fixed radius plot.**

DEFINITION:

The count is the number of saplings (>= 1" dbh) that were counted as a group in the R5, R6, or BLMWO inventories.
The count is used to increase the number of trees-per-unit area represented by each group of saplings.

TPA=TPA*TREE_COUNT
TPH=TPH*TREE_COUNT
TPA_SUBPLOT=TPA_SUBPLOT*TREE_COUNT
TPH_SUBPLOT=TPH_SUBPLOT*TREE_COUNT

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TREE_DEAD_ID**

CODED? **No**

BRIEF DESCRIPTION: **Dead tree ID: Unique number assigned to each dead tree (row) in the TREE_DEAD table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each tree (row) in the entire Dead tree table (TREE_DEAD). Tree tag numbers assigned in the field are not necessarily unique for the plot, National Forest, or BLM district, etc., and in some cases no tree number was assigned to a dead tree--so a new ID number was assigned to every tree in the table.

The ALLTREE_ID differs from this column because ALLTREE_ID is unique for all individual live and dead trees throughout the database.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TREE_HIST**

CODED? **Yes**

BRIEF DESCRIPTION: **Tree history**

DEFINITION:

This code identifies whether the tree is a mortality, snag, or both.
A code of 5 is mortality only, a code of 7 is snag only, and a code of 57 is for a tree that is both a mortality and snag. This originates from FIA database coding.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TREE_SPECIES**

CODED? **Yes**

BRIEF DESCRIPTION: **FIA species code to identify the tree species**

DEFINITION:

A numeric code to identify the species of the tree tallied on the plot.
Codes less than 300 are softwoods and codes > 300 are hardwoods.

Refer to the metadata table called TREE_SPECIES for a variety of data about tree species, including the numeric and alpha code, species codes used by R5, R6, and BLMWO, common name, scientific name, FVS species codes, and years to breast height.

Note that forest type codes use the same set of species codes.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TREE_SPECIES_GROUP**

CODED? **Yes**

BRIEF DESCRIPTION: **A text code to organize species into groups**

DEFINITION:
This code organizes species by hardwood, softwood or unknown.

TREE_SPECIES_GROUP = HW for trees with a numeric tree species between 300 - 998.
TREE_SPECIES_GROUP = SW for trees with a numeric tree species between 1 - 299.

TREE_SPECIES_GROUP = UNK for trees with a numeric tree species of 999: species unknown.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **TREE_TAG_NUM**

CODED? **No**

BRIEF DESCRIPTION: **Tree tag number**

DEFINITION:

The number on the metal tag of each tally tree.

It is recommended that either the TREE_ID or ALLTREE_ID be used to uniquely identify each tree. Tree tag numbers vary in their uniqueness, depending on the inventory. In some cases, tree tags are missing for unknown reasons.

For FIA, tree tag numbers are required for all trees >= 5" (12.5cm) dbh at either the previous or current inventory. For remeasured trees, the tree number is the same one assigned at the previous inventory unless the tree tag was missing and replaced at the current inventory. Tree numbers are unique on each subplot, but not across the entire plot.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **VOL_AC_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Total stem volume per acre, cubic feet/acre**

DEFINITION:

The volume of the entire tree stem from the ground to the actual top of the tree, in cubic feet/acre. The top is either the point where the tree has broken off or the natural tip of the tree if it is fully intact. For dead trees, the top can range from 1 foot tall to hundreds of feet tall. This volume has not been reduced by the percent of sound or rotten cull that might have been recorded for the tree.

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals for summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Total stem volume in cubic feet = VOL_AC_FT3 * ACRES_VOL

Volumes were calculated with 2 methods: 1) a taper volume equation if the appropriate coefficients and parameters were available for the given species, or 2) a simple equation that calculates volume from basal area and actual height.

See the technical documentation "DEAD TREE DOCUMENTATION.doc" for more info on dead tree volume calculations.

TABLE NAME: **TREE_DEAD**

COLUMN NAME: **VOL_TR_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross total stem volume, cubic feet/tree**

DEFINITION:

The volume of the individual tree stem from the ground to the actual top of the tree, in cubic feet. The top is either the point where the tree has broken off or the natural tip of the tree if it is fully intact. For dead trees, the top can range from less than a meter tall to over 50m tall. This volume has not been reduced by the percent of sound or rotten cull that might have been recorded for the tree.

Volumes were calculated with 2 methods: 1) a taper volume equation if the appropriate coefficients and parameters were available for the given species, or 2) a simple equation that calculates volume from basal area and actual height.

If coefficients exist, the taper equation is used to estimate cubic volume per tree based on actual and total height:

VOL_TR_FT3 = (FACTOR * (0.0000785*DBH_CM**2)) / .0283

Where: FACTOR =
((BETA0* HEIGHT_ACT) + ((BETA1/2.0)*(HEIGHT_ACT **2.0/ HEIGHT_TOT)) +
((BETA2/3.0)*((HEIGHT_ACT **3.0)/(HEIGHT_TOT **2.0))))

Beta's are coefficients and heights are in meters.

If no coefficients exist, then BASAL AREA and Actual HEIGHT are used to get the volume:
VOL_TR_FT3 = (BA_M2 * HEIGHT_ACT) / .0283 (height is in meters)

See the technical documentation "DEAD TREE DOCUMENTATION.doc" for more info on dead tree volume calculations and specific coefficients.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **AGE_BH**

CODED? **No**

BRIEF DESCRIPTION: **Age of the tree at breast height**

DEFINITION:

Breast height age of the tree is the estimated or measured (bored) age at breast height, in years. Breast height is the location on a tree where it is bored, about 4.5 ft (1.37m) from the ground. Bored ages are identified by a code in the BORED_YN column.

In FIA inventories, an age is recorded on all live trees. This age can be bored and measured, or estimated by evaluating the known ages of other trees in the stand.
If a tree was bored in a previous inventory, the computer calculated the length of the remeasurement period and added those years to get the current age of the tree. Most hardwoods were not bored for age, instead an age was estimated from tree stumps on the plot, if present, or from other information about planting history, etc.

The R5, R6, RMRS and BLMWO inventories did not estimate ages on any tree--all ages were measured (bored).

For R5, ages were measured on a specific set of Measure Trees (MT), primarily conifer. R5 measured a sample of live non-cull trees on each plot. At least one softwood >= 3" (7.6cm) was selected on each subplot for measurement. Hardwoods were rarely sampled for age. Selection began at true north and proceeded clockwise, a measurement was taken on each tree that met the selection criteria: non-cull conifers that are reasonably sound and where a readable core of at least 75% of the tree radius was obtainable.

For Region 6, ages were measured on Growth Sample Trees (GST), which were the first live standing tree per species per diameter class on each subplot, starting at 360 degrees and moving clockwise. R6 has 9 diameter classes and a specific set of species that are valid as a GST.

For RMRS data_source age information was collected on a minimum of one tree in each 2" diameter class for each species and for timber species seedling count per species.

An estimate of the number of years a species takes to reach breast height is available in the metadata table TREE_SPECIES.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **AGE_TTL**

CODED? **No**

BRIEF DESCRIPTION: **Total age of the tree**

DEFINITION:

Total age of the tree is the estimated age of the tree, in years. Total age was calculated by adding a species-dependent number of years to the breast height age, which represented the number of years it took a tree to reach breast height.

Bored ages are identified by a code in the BORED_YN column.

An estimate of the number of years a species takes to reach breast height is available in the metadata table TREE_SPECIES.

For R5, total age was recorded by field crews by adding 10 years to the measured breast-height age.

See these column definitions for more details:
AGE_BH
BORED_YN

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **AHG_FT**

CODED? **No**

BRIEF DESCRIPTION: **Annual height growth, in feet**

DEFINITION:
Annual height growth is an estimate of the increase in the height of a tree for one year, in feet. Calculated for all live growing stock trees >= 1" (2.5 cm) dbh. The annual height growth of a tree was calculated differently for FIA compared to the National Forest and BLM inventories.

FIA:
For the majority of FIA trees, a height was estimated and/or measured for at least one of two periodic inventories. The remeasurement period was the length of time between inventories, ranging from 7-15 years.

If a measured height existed for both inventories, AHG_FT is the difference in height at the 2 points in time, divided by the remeasurement period.
If only one measured height was present, AHG_FT was estimated with equations that were based on site index studies and calibrated with data from other measured heights in the inventory as follows:
1. Estimate both heights from the equations and take the difference.
2. If the current height was present: Calibrate the difference using the ratio of current measured height/current estimated height.
3. If the previous height was present: Calibrate the difference using the ratio of previous measured height/previous estimated height.
4. In both cases, further calibrate the difference using factors derived from other measured heights which adjust for observed differences in height by age class and species.
5. The AHG_FT is the calibrated difference between heights at both inventories.

In the cases where no height was available for the tree, a different set of predictive equations were used, which were developed from other measured heights in the FIA inventory. These equations were primarily based on one or more of the following: dbh, age, crown ratio, species. The AHG_FT was the difference in estimated heights from both points in time divided by the remeasurement period. The AHG_FT for saplings was estimated as: (HT_FT - 4.5)/AGE.

R5, R6, BLMWO, RMRS:
For R5, R6, and BLMWO inventories, there was measured height information for only the current inventory (panel 1), where a subsample of trees were measured. All previous heights were estimated with national FVS height estimation equations. For the sake of these calculations, a 'remeasurement period' was set to 10 years. The procedure used to estimate annual height growth is as follows:

1. Estimate both heights from FVS equations (using DBH_IN or PREV_DBH_IN) and take the difference.
2. If no measured height was available for the current inventory, the annual height growth is simply the difference between estimated heights divided by the remeasurement period (10 years).
3. If a measured height WAS available for the current inventory, the difference between estimated heights is calibrated using the ratio of current measured height/current estimated height. AHG_FT is the calibrated difference divided by the remeasurement period (10 years).

For RMRS data_source height was estimated on woodland species.

Annual height growth (AHG_FT) is used to calculate the previous height and the height of the tree one year prior to the current inventory as follows:
PREV_HT=HT_FT - (AHG_FT * 10)
HT_1YR_AGO_FT= HT_FT - AHG_FT

Refer to the technical documentation for more details on AHG_FT and height estimation.

The primary use of AHG_FT was to help estimate current annual growth volume for the tree. Both HT_1YR_AGO_FT and DBH_1YR_AGO_IN are used to calculate a volume for the tree one year prior to the current inventory. This volume is an estimate for current annual volume growth. Growth estimates are available for growing stock and sawtimber trees (net volume) and for all live trees (total stem volume).

AHG_FT was also used to estimate missing heights on the FIA access-denied plots, where heights measured in the previous inventory were projected forward to the year of the current inventory.

See these column definitions for more details:
HT_1YR_AGO_FT
DBH_1YR_AGO_IN
REM_PERIOD
VOL_TR_GRS_CA_GRW_FT3
VOL_TR_GRS_CA_GRW_STEM_TTL_FT3
VOL_AC_NET_CA_GRW_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **AHG_M**

CODED? **No**

BRIEF DESCRIPTION: **Annual height growth, in meters**

DEFINITION:
Annual height growth is an estimate of the increase in the height of a tree for one year, in meters. Calculated for all live growing stock trees >= 1" (2.5 cm) dbh. The annual height growth of a tree was calculated differently for FIA compared to the National Forest and BLM inventories.

FIA:
For the majority of FIA trees, a height was estimated and/or measured for at least one of two periodic inventories. The remeasurement period was the length of time between inventories, ranging from 7-15 years.

If a measured height existed for both inventories, AHG_M is the difference in height at the 2 points in time, divided by the remeasurement period.
If only one measured height was present, AHG_M was estimated with equations that were based on site index studies and calibrated with data from other measured heights in the inventory as follows:
1. Estimate both heights from the equations and take the difference.
2. If the current height was present: Calibrate the difference using the ratio of current measured height/current estimated height.
3. If the previous height was present: Calibrate the difference using the ratio of previous measured height/previous estimated height.
4. In both cases, further calibrate the difference using factors derived from other measured heights which adjust for observed differences in height by age class and species.
5. The AHG_M is the calibrated difference between heights at both inventories.

In the cases where no height was available for the tree, a different set of predictive equations were used, which were developed from other measured heights in the FIA inventory. These equations were primarily based on one or more of the following: dbh, age, crown ratio, species. The AHG_M was the difference in estimated heights from both points in time divided by the remeasurement period. The AHG_M for saplings was estimated as: (HT_M - 1.37)/AGE.

R5, R6, BLMWO, RMRS:
For R5, R6, and BLMWO inventories, there was measured height information for only the current inventory (panel 1), where a subsample of trees were measured. All previous heights were estimated with national FVS height estimation equations. For the sake of these calculations, a 'remeasurement period' was set to 10 years. The procedure used to estimate annual height growth is as follows:

1. Estimate both heights from FVS equations (using DBH_CM or PREV_DBH_CM and take the difference.
2. If no measured height was available for the current inventory, the annual height growth is simply the difference between estimated heights divided by the remeasurement period (10 years).
3. If a measured height WAS available for the current inventory, the difference between estimated heights is calibrated using the ratio of current measured height/current estimated height. AHG_M is the calibrated difference divided by the remeasurement period (10 years).

For RMRS data_source height was estimated on woodland species.

Annual height growth (AHG_M) is used to calculate the previous height and the height of the tree one year prior to the current inventory as follows:
PREV_HT=HT_M - (AHG_M * 10)
HT_1YR_AGO_M= HT_M - AHG_M

Refer to the technical documentation for more details on AHG_M and height estimation.

The primary use of AHG_M was to help estimate current annual growth volume for the tree. Both HT_1YR_AGO_M and DBH_1YR_AGO_CM are used to calculate a volume for the tree one year prior to the current inventory. This volume is an estimate for current annual volume growth. Growth estimates are available for growing stock and sawtimber trees (net volume) and for all live trees (total stem volume).

AHG_M was also used to estimate missing heights on the FIA access-denied plots, where heights measured in the previous inventory were projected forward to the year of the current inventory.

See these column definitions for more details:
HT_1YR_AGO_M
DBH_1YR_AGO_M
REM_PERIOD
VOL_TR_GRS_CA_GRW_FT3
VOL_TR_GRS_CA_GRW_STEM_TTL_FT3
VOL_AC_NET_CA_GRW_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **ALLTREE_ID**

CODED? **No**

BRIEF DESCRIPTION: **A unique code which identifies every tree (live or dead) in the database**

DEFINITION:

A sequential number which uniquely identifies each individual tree (live and dead) in the entire database. This number allows users to combine live and dead trees if desired, and still retain a unique ID for the new table. This number also allows for easy tracking of dead trees because a tree in the mortality table may also be in the snag table if it qualifies. It also tracks live trees which are site trees in the SITE table.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **ASDG_CM2**

CODED? **No**

BRIEF DESCRIPTION: **Annual squared diameter growth, in square centimeters**

DEFINITION:

Annual squared diameter growth is an estimate of the increase in the diameter at breast height of a tree, in square centimeters. This estimate is for one year during the remeasurement period. It is calculated for all live growing stock trees >= 1" (2.5 cm) dbh in FIA inventories, and for all live growing stock trees >= 3" (7.6 cm) in the NFS and BLMWO inventories.
The ASDG_CM2 is used to estimate a dbh for the tree at any point in the remeasurement period. The primary use of this data is to help estimate current annual volume growth by providing an estimate of dbh for the year previous to the current inventory. This is combined with an estimate of height at the same point in time, and used to calculate a volume for the tree. Current annual volume growth is the volume of the tree for the year previous to the current inventory.

When 2 dbh's are available, ASDG_CM2 is calculated as follows:
((DBH_CM**2) - (PREV_DBH_CM**2))/ REM_PERIOD

Note that all trees in R5, R6, RMRS, and BLMWO inventories had a previous dbh calculated from either measured or estimated 10-year diameter increments (DBH_INC_10YR_CM). These increments were measured in the field from increment cores sampled on the plot, or estimated with FVS equations. The method used to estimate increment and dbh are identified by codes in the columns DBH_INC_EST_METHOD and DBH_EST_METHOD.

See technical documentation for more information on these methods.

In FIA inventories, if a previous DBH was missing (i.e. new plot) an increment core was measured to estimate the dbh for the previous inventory. In some cases, it was not possible to estimate a dbh for the 2 points in time, so predictive equations were used to estimate ASDG_CM2 for the tree.

See these column definitions for more details:
DBH_INC_10YR_CM
DBH_1YR_AGO_CM
PREV_DBH_CM
DBH_EST_METHOD
DBH_INC_EST_METHOD
AHG_M
REM_PERIOD
VOL_TR_GRS_CA_GRW_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **ASDG_IN2**

CODED? **No**

BRIEF DESCRIPTION: **Annual squared diameter growth, in square inches**

DEFINITION:

Annual squared diameter growth is an estimate of the increase in the diameter at breast height of a tree, in square inches. This estimate is for one year during the remeasurement period. It is calculated for all live growing stock trees >= 1" (2.5 cm) dbh in FIA inventories, and for all live growing stock trees >= 3" (7.6 cm) in the NFS and BLMWO inventories.

The ASDG_IN2 is used to estimate a dbh for the tree at any point in the remeasurement period. The primary use of this data is to help estimate current annual volume growth by providing an estimate of dbh for the year previous to the current inventory. This is combined with an estimate of height at the same point in time, and used to calculate a volume for the tree. Current annual volume growth is the volume of the tree for the year previous to the current inventory.

When 2 dbh's are available, ASDG_IN2 is calculated as follows:
((DBH_IN**2) - (PREV_DBH_IN**2))/ REM_PERIOD

Note that all trees in R5, R6, RMRS, and BLMWO inventories had a previous dbh calculated from either measured or estimated 10-year diameter increments (DBH_INC_10YR_IN). These increments were measured in the field from increment cores sampled on the plot, or estimated with FVS equations. The method used to estimate increment and dbh are identified by codes in the columns DBH_INC_EST_METHOD and DBH_EST_METHOD.

See technical documentation for more information on these methods.

In FIA inventories, if a previous DBH was missing (i.e. new plot) an increment core was measured to estimate the dbh for the previous inventory. In some cases, it was not possible to estimate a dbh for the 2 points in time, so predictive equations were used to estimate ASDG_IN2 for the tree.

See these column definitions for more details:
DBH_INC_10YR_IN
DBH_1YR_AGO_IN
PREV_DBH_IN
DBH_EST_METHOD
DBH_INC_EST_METHOD
AHG_FT
REM_PERIOD
VOL_TR_GRS_CA_GRW_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BA_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area in square feet**

DEFINITION:
The basal area of a tree is the cross-sectional area of the tree stem at the point where DBH is measured, in square feet. Calculated for all live trees >=1" (2.5cm) dbh. This estimate of basal area includes bark.

Basal area per tree is calculated as follows:
BA_FT2 = .005454 * DBH_IN**2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BA_FT2_AC**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area, square feet per acre**

DEFINITION:

The amount of basal area a tree represents per acre in the condition class on the plot, in square feet per acre. Calculated for all live trees >=1" (2.5cm) dbh.

Tree basal area is the cross-sectional area of the tree stem at the point where DBH is measured, and includes bark.

Basal area per acre is calculated as follows:

BA_FT2_AC = BA_FT2 * TPA

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BA_M2**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area in square meters**

DEFINITION:
The basal area of a tree is the cross-sectional area of the tree stem at the point where DBH is measured, in square meters. Calculated for all live trees >=1" (2.5cm) dbh. This estimate of basal area includes bark.

Basal area per tree is calculated as follows:

BA_M2 = .00007854 * DBH_CM**2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BA_M2_HA**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area, square meters per hectare**

DEFINITION:

The amount of basal area a tree represents per hectare in the condition class on the plot, in square meters per hectare. Calculated for all live trees >=1" (2.5cm) dbh.

Tree basal area is the cross-sectional area of the tree stem at the point where DBH is measured, and includes bark.

Basal area per hectare is calculated as follows:

BA_M2_HA = BA_M2 * TPH

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_AC_ABV_GRND_TON**

CODED? **No**

BRIEF DESCRIPTION: **Above ground woody biomass, tons per acre**

DEFINITION:

The total above ground woody biomass of the tree, in tons/acre. This biomass is the accumulated oven-dry weight of stem, bark, stump, top and live woody branches. It is calculated for all live trees >= 1" (2.5 cm) dbh.

The biomass of foliage, cones, fruits and roots was not calculated in the IDB and is not included in this estimate of above ground biomass.

Biomass of the stem is calculated from the cubic volume of the total stem (VOL_AC_GRS_STEM_TTL_FT3) which includes the stump and top.

Wood biomass is estimated by converting cubic (green) volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water). For softwoods and some hardwoods, volume estimates for the total tree stem include just the woody tree bole, without bark. But, for a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) a volume equation is used which includes the volume of bark and branches in the total stem estimate for volume. This is due to the crown shape and branching patterns for these hardwoods, making it difficult to identify the traditional 'total stem'. For these species, it was not possible to develop separate estimates of biomass for the total bole, bark and branches. The result is that the estimate of total stem biomass for these hardwoods actually includes the biomass of bark and branches. The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass of the bark and live woody branches are calculated from published equations for softwoods and the hardwood species not listed above.

Biomass per acre is calculated from the biomass per tree as follows:
BIOM_AC_ABV_GRND_TON=BIOM_TR_ABV_GRND_TON * TPA

or, it can be calculated by adding the biomass components:
BIOM_AC_ABV_GRND_TON= (BIOM_AC_BOLE_TTL_TON) + (BIOM_AC_BRANCH_TON) + (BIOM_AC_BARK_TON)

Biomass/acre is expanded by the acres per condition to produce an estimate of biomass for the inventory (population totals for summary tables). The total biomass that the tree represents in the inventory, is calculated as follows:
Total above ground biomass = BIOM_AC_ABV_GRND_TON * ACRES_VOL

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_AC_BOLE_TTL_TON
BIOM_AC_BOLE_MERCH_TON
BIOM_AC_BRANCH_TON
BIOM_AC_BARK_TON

BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_AC_GRS_STEM_TTL_FT3
VOL_AC_GRS_FT3

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_LIVE	**BIOM_AC_BARK_TON**	

BRIEF DESCRIPTION: **Biomass of the bark, tons per acre**

DEFINITION:
The biomass of tree bark on the tree bole is the oven-dry weight of the bark, in tons/acre, calculated for all live trees >= 1" (2.5 cm) dbh.

Published equations are used to estimate bark biomass for all softwoods and some hardwood species. Because a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) use a volume equation which includes the volume of bark with the total stem estimate for volume, bark biomass was not estimated separately for the tree. All other species not on the list above have an estimate of bark biomass in this column.

The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass per acre is calculated from the biomass per tree as follows:
BIOM_AC_BARK_TON=BIOM_TR_BARK_TON * TPA

Biomass/acre is expanded by the acres per condition to produce an estimate of biomass for the inventory (population totals for summary tables). The total biomass that the tree represents in the inventory, is calculated as follows:
Total above ground biomass = BIOM_AC_BARK_TON * ACRES_VOL

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_AC_BOLE_TTL_TON
BIOM_AC_BOLE_MERCH_TON
BIOM_AC_BRANCH_TON
BIOM_TR_BARK_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_AC_GRS_STEM_TTL_FT3
VOL_AC_GRS_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_AC_BOLE_MERCH_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the merchantable bole, tons per acre**

DEFINITION:

The biomass of the merchantable tree bole is the oven-dry weight of the bole, inside bark, measured from a 12" high stump to a 4" diameter top, in tons/acre. This biomass is calculated for all live trees >= 5" (12.5cm) dbh.

Wood biomass is estimated by converting cubic (green) volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water). Biomass of the merchantable bole is calculated from the estimate of gross cubic volume (VOL_AC_GRS_FT3) as follows:

BIOM_AC_BOLE_MERCH_TON =
VOL_AC_GRS_FT3 * BIOM_WOOD_DENS (lbs/ft3) * .0005 tons/lb

where BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3

Biomass per acre is calculated from the biomass per tree as follows:
BIOM_AC_BOLE_MERCH_TON=BIOM_TR_BOLE_MERCH_TON * TPA

Biomass/acre is expanded by the acres per condition to produce an estimate of biomass for the inventory (population totals for summary tables). The total biomass that the tree represents in the inventory, is calculated as follows:
Total biomass of the merchantable = BIOM_AC_BOLE_MERCH_TON * ACRES_VOL

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_TR_BOLE_MERCH_TON
BIOM_AC_BRANCH_TON
BIOM_AC_BARK_TON
BIOM_AC_ABV_GRND_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_AC_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_AC_BOLE_TTL_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the total tree bole, tons per acre**

DEFINITION:
The biomass of the total tree bole is the oven-dry weight of the entire tree stem (inside bark, ground to tip), in tons/acre. It is calculated for all live trees >= 1" (2.5 cm) dbh.

Wood biomass is estimated by converting cubic (green) volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water). For softwoods and some hardwoods, volume estimates for the total tree stem include just the woody tree bole, without bark. But, for a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) a volume equation is used which includes the volume of bark and branches in the total stem estimate for volume. This is due to the crown shape and branching patterns for these hardwoods, making it difficult to identify the traditional 'total stem'. For these species, it was not possible to develop separate estimates of biomass for the total bole, bark and branches. The result is that the estimate of total stem (bole) biomass for these hardwoods actually includes the biomass of bark and branches. The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass of the bole is calculated from the cubic volume of the total stem (VOL_AC_GRS_STEM_TTL_FT3) which includes the stump and top, as follows:

BIOM_AC_BOLE_TTL_TON =
VOL_AC_GRS_STEM_TTL_FT3 * BIOM_WOOD_DENS (lbs/ft3) * .0005 tons/lb

where BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3

Biomass per acre is calculated from the biomass per tree as follows:
BIOM_AC_BOLE_TTL_TON=BIOM_TR_BOLE_TTL_TON * TPA

Biomass/acre is expanded by the acres per condition to produce an estimate of biomass for the inventory (population totals for summary tables). The total biomass that the tree represents in the inventory, is calculated as follows:
Total above ground biomass = BIOM_AC_BOLE_TTL_TON * ACRES_VOL

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_TR_BOLE_TTL_TON
BIOM_AC_BOLE_MERCH_TON
BIOM_AC_BRANCH_TON
BIOM_AC_BARK_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_AC_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_AC_BRANCH_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the live woody branches, in tons per acre**

DEFINITION:

The oven-dry weight of the live branches (wood and bark) in the crown, excluding foliage, in tons/acre. It is calculated for all live trees >= 1" (2.5 cm) dbh.

Published equations are used to estimate branch biomass for all softwoods and some hardwood species. Because a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) use a volume equation which includes the volume of branches with the total stem estimate for volume, branch biomass was not estimated separately for the tree. All other species not on the list above have an estimate of branch biomass in this column.

The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass per acre is calculated from the biomass per tree as follows:
BIOM_AC_BRANCH_TON=BIOM_TR_BRANCH_TON * TPA

Biomass/acre is expanded by the acres per condition to produce an estimate of biomass for the inventory (population totals for summary tables). The total biomass that the tree represents in the inventory, is calculated as follows:
Total above ground biomass = BIOM_AC_BRANCH_TON * ACRES_VOL

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_TR_BRANCH_TON
BIOM_AC_BOLE_TTL_TON
BIOM_AC_BOLE_MERCH_TON
BIOM_AC_BARK_TON
BIOM_AC_ABV_GRND_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_TR_ABV_GRND_TON**

CODED? **No**

BRIEF DESCRIPTION: **Above ground woody biomass, in tons/tree**

DEFINITION:

The total above ground woody biomass is the oven-dry weight of the woody components of the tree, in tons. This biomass is the accumulated weight of the stem, bark, stump, top and live woody branches. It is calculated for all live trees >= 1" (2.5 cm) dbh.

The biomass of foliage, cones, fruits and roots was not calculated in the IDB and is not included in this estimate of above ground biomass.

Biomass of the stem is calculated from the cubic volume of the total stem (VOL_TR_GRS_STEM_TTL_FT3) which includes the stump and top.

Biomass of the bark and live woody branches are calculated from published equations for most species. An exception to this is for a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) that use a volume equation which includes the volume of bark and branches in the total stem estimate for volume. For these species, it was not possible to develop separate estimates of biomass for the bark and branches. The result is that the estimate of total stem biomass actually includes the biomass of bark and branches. The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass per tree is used to calculate biomass per acre as follows:
BIOM_AC_ABV_GRND_TON=BIOM_TR_ABV_GRND_TON * TPA

Total biomass can be calculated by adding the biomass components:
BIOM_TR_ABV_GRND_TON= (BIOM_TR_BOLE_TTL_TON) + (BIOM_TR_BRANCH_TON) + (BIOM_TR_BARK_TON)

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_AC_ABV_GRND_TON
BIOM_TR_BOLE_TTL_TON
BIOM_TR_BOLE_MERCH_TON
BIOM_TR_BRANCH_TON
BIOM_TR_BARK_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_AC_GRS_STEM_TTL_FT3
VOL_AC_GRS_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_TR_BARK_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the bark, in tons/tree**

DEFINITION:

The biomass of tree bark on the tree bole is the oven-dry weight of the bark, in tons, calculated for all live trees >= 1" (2.5 cm) dbh.

Published equations are used to estimate bark biomass for all softwoods and some hardwood species. Because a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) use a volume equation which includes the volume of bark with the total stem estimate for volume, bark biomass was not estimated separately for the tree. All other species not on the list above have an estimate of bark biomass in this column.

The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass per tree is used to calculate the biomass per acre as follows:
BIOM_AC_BARK_TON=BIOM_TR_BARK_TON * TPA

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_AC_BARK_TON
BIOM_TR_BOLE_TTL_TON
BIOM_TR_BOLE_MERCH_TON
BIOM_TR_BRANCH_TON
BIOM_TR_ABV_GRND_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_TR_BOLE_MERCH_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the merchantable tree bole, in tons/tree**

DEFINITION:

The biomass of the merchantable tree bole is the oven-dry weight of the bole (stem), inside bark, measured from a 12" high stump to a 4" diameter top, in tons. This biomass is calculated for all live trees >= 5" (12.5cm) dbh.

Wood biomass is estimated by converting cubic (green) volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water). Biomass of the merchantable bole is calculated from the estimate of gross cubic volume (VOL_TR_GRS_FT3) as follows:

BIOM_TR_BOLE_MERCH_TON =
VOL_TR_GRS_FT3 * BIOM_WOOD_DENS (lbs/ft3) * .0005 tons/lb

where BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3

Biomass per acre is calculated from the biomass per tree as follows:
BIOM_AC_BOLE_MERCH_TON=BIOM_TR_BOLE_MERCH_TON * TPA

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_AC_BOLE_MERCH_TON
BIOM_TR_BOLE_TTL_TON
BIOM_TR_BRANCH_TON
BIOM_TR_BARK_TON
BIOM_TR_ABV_GRND_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_AC_GRS_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_TR_BOLE_TTL_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the total tree bole, in tons/tree**

DEFINITION:
The biomass of the total tree bole is the oven-dry weight of the entire tree stem (inside bark, ground to tip), in tons. It is calculated for all live trees >= 1" (2.5 cm) dbh.

Wood biomass is estimated by converting cubic (green) volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water). For softwoods and some hardwoods, volume estimates for the total tree stem include just the woody tree bole, without bark. But, for a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) a volume equation is used which includes the volume of bark and branches in the total stem estimate for volume. This is due to the crown shape and branching patterns for these hardwoods, making it difficult to identify the traditional 'total stem'. For these species, it was not possible to develop separate estimates of biomass for the total bole, bark and branches. The result is that the estimate of total stem (bole) biomass for these hardwoods actually includes the biomass of bark and branches. The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass of the bole is calculated from the cubic volume of the total stem (VOL_TR_GRS_STEM_TTL_FT3) which includes the stump and top, as follows:

BIOM_TR_BOLE_TTL_TON =
VOL_TR_GRS_STEM_TTL_FT3 * BIOM_WOOD_DENS (lbs/ft3) * .0005 tons/lb

where BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3

Biomass per tree is used to calculate the biomass per acre as follows:
BIOM_AC_BOLE_TTL_TON=BIOM_TR_BOLE_TTL_TON * TPA

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_AC_BOLE_TTL_TON
BIOM_TR_BOLE_MERCH_TON
BIOM_TR_BRANCH_TON
BIOM_TR_BARK_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_TR_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_TR_BRANCH_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the live woody branches, in tons/tree**

DEFINITION:

The oven-dry weight of the live branches (wood and bark) in the crown, excluding foliage, in tons. It is calculated for all live trees >= 1" (2.5 cm) dbh.

Published equations are used to estimate branch biomass for all softwoods and some hardwood species. Because a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) use a volume equation which includes the volume of branches with the total stem estimate for volume, branch biomass was not estimated separately for the tree. All other species not on the list above have an estimate of branch biomass in this column.

The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass per tree is used to calculate the biomass per acre as follows:
BIOM_AC_BRANCH_TON=BIOM_TR_BRANCH_TON * TPA

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_AC_BRANCH_TON
BIOM_TR_BOLE_TTL_TON
BIOM_TR_BOLE_MERCH_TON
BIOM_TR_BARK_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_WOOD_DENS**

CODED? **No**

BRIEF DESCRIPTION: **Density of wood for a species, in pounds/cubic foot.**

DEFINITION:

Wood density is a factor used to convert tree volume to biomass. It is an estimate of the oven dry weight (in pounds) of wood fiber per cubic foot of tree volume.

Wood density is calculated from the specific gravity of the wood and the weight of water as follows:
BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3
where 62.4 is the weight of water, and
BIOM_WOOD_SPEC_GRAV = the specific gravity of the wood for a given species.

Specific gravity is the ovendry weight of a piece of green wood divided by the weight of water displaced by the wood. Specific gravity has no units.

Values for specific gravity for most species were obtained from the Wood Handbook: Wood as an Engineering Material, Forest Products Laboratory, Agriculture Handbook #72, 1987, Table 4-2. Species that were not listed in this Handbook were assigned a specific gravity from a similar species. Every tree >= 1" (2.5cm) in the database has a specific gravity and wood density assigned to it.

Biomass is estimated by multiplying the wood density by the cubic volume of a tree stem (total stem or merchantable stem), which results in the ovendry weight in pounds of wood fiber. This weight can then be easily converted to tons by multiplying by .0005 tons/lb or to kilograms by .4536 kg/lb.

Biomass of the total stem and merchantable bole are calculated from wood density. Biomass of the bark and branches are estimated from equations and do not use wood density in the calculations directly.

Please refer to the technical documentation for more details and a complete list of biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_TR_BOLE_TTL_TON
BIOM_TR_BOLE_MERCH_TON
BIOM_TR_ABV_GRND_TON
BIOM_WOOD_SPEC_GRAV

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **BIOM_WOOD_SPEC_GRAV**

CODED? **No**

BRIEF DESCRIPTION: **Specific gravity of wood for a given species**

DEFINITION:

Specific gravity is the ovendry weight of a piece of green wood divided by the weight of water displaced by the wood. It is used to calculate wood density which in turn is used to estimate the biomass of the tree bole. Specific gravity has no units.

Values for specific gravity for most species were obtained from the Wood Handbook: Wood as an Engineering Material, Forest Products Laboratory, Agriculture Handbook #72, 1987, Table 4-2. Species that were not listed in this Handbook were assigned a specific gravity from a similar species. Every tree >= 1" (2.5cm) in the database has a specific gravity and wood density assigned to it.

Specific gravity is used to estimate wood density as follows:

BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3
where 62.4 is the weight of water.

Biomass is estimated by multiplying the wood density by the cubic volume of a tree stem (total stem or merchantable stem), which results in the ovendry weight in pounds of wood fiber. This weight can then be easily converted to tons by multiplying by .0005 tons/lb or to kilograms by .4536 kg/lb.

See these column definitions for more details:
BIOM_WOOD_SPEC_GRAV

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
TREE_LIVE	**BORED_YN**	

BRIEF DESCRIPTION: **Indicates whether the tree was bored**

DEFINITION:
This column indicates whether a tree was bored to obtain a measurement for breast height age. Only a subset of trees were sampled to determine tree age.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
TREE_LIVE	**CNTY**	

BRIEF DESCRIPTION: **County code**

DEFINITION:
A numeric code which identifies the county where the field plot is located. County codes are unique within a state. See the code definitions for a list of counties and their text names. Use the table IDB_COUNTY_NAMES to use names of counties in queries.

CNTY should not be used to link tables. Use COND_ID which is a unique identifier

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **COND_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Condition class code**

DEFINITION:

A numeric code that identifies an individual condition class on a plot. Condition classes are defined by differences in land class (forest, non-forest), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), owner, or other situations that occur across the plot area. The condition in the center of subplot 1 is recorded as condition class #1 in most inventories, and the rest of the conditions are numbered sequentially as they are encountered on the subplot or plot. Because plots are installed in specific locations and each subplot is installed in fixed positions, it is possible for subplots to straddle condition boundaries. When this occurs, the boundaries are mapped and specific details are recorded for each condition. The condition class code is recorded with every piece of information associated with that particular condition. At the data compilation level, if more than one condition exists, the plot is effectively partitioned into "condition class plots" resulting in more than one record for each plot. Classifications and summaries are made at the condition class level, where data collected within each condition class are essentially considered and treated as a plot.

Because the IDB consists of data from a variety of inventory designs, condition class assignments were handled in slightly different ways. In the FIACA, FIAEO, and FIAWO inventories, multiple conditions were recorded in the field on each subplot (if present). In the FIAEW, FIAWW, R5, R6, and BLM inventories, only one condition class was identified on each subplot (the entire subplot area was assigned the same condition number).

The Region 6 and BLMWO inventories did not record condition classes in the field, so the IDB staff developed a procedure to identify broad condition classes in the office. The procedure was based on information contained in the plant association code, which field crews recorded on each subplot. Please refer to the Technical Documentation for a detailed description of the condition class procedure. In general, the Series codes (1st 2 letters in the plant association code) were evaluated to determine whether the subplot was forest or non-forest. All non-forest Series were lumped into one condition class with a ground land class (see GLC definition) code of 60. Forest plant associations were further divided into softwood or hardwood forests, and finally assigned a condition class based on the 2nd letter of the Series code which identifies the dominant potential vegetation (species). Using this algorithm, we were able to assign a condition class code to each subplot.

The Region 5 inventory recorded condition classes in the field and were based on differences in land class or broad differences in forest type, stand size, stand origin or stand density. R5 staff provided condition class codes for the IDB.

The PNW-FIA inventories identified condition classes in the field. Conditions were defined as a distinct land class (timberland, oak woodland, nonforest, etc), distinct vegetation composition (forest type, stand structure, stocking density, cutting history, etc), or an area that was out of the sampled inventory area (i.e. outside the state or in a reserved area). Subplots that straddle condition class boundaries were mapped and a proportion was estimated for the amount of the subplot area within each condition. The condition identified at the center of subplot #1 was always labeled as condition class '1'. When a condition class was not associated with any subplot center (such as a road that crosses the outer portion of one subplot) it is called a "sliver". To classify an area as a different condition based on the vegetation composition (forest stand), the area must be at least 2.5 ha (6.25 ac) in size and

at least 35m (120 ft) wide. These conditions are often associated with changes in physioclass such as: (a) steep north slope vs. steep south slope; (b) swampy flat vs. well-drained upland; or (c) deep-soiled flat vs. thin-soiled upland. In addition, a new condition would be recorded when crossing the boundary between pure hardwood to pure softwood, from regeneration to sawtimber stands, poorly stocked to well-stocked stands, or from uncut to partially harvested areas. To classify an area as a different condition based on the land class, the area on the subplot must be at least .4 hectares (1 acre) in size and 35 meters 120 feet) wide.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_LIVE	**COND_ID**	

BRIEF DESCRIPTION: **Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Condition Class (COND) table. COND_ID is a key field, used to join the TREE_LIVE table to the COND table.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **CROWN_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Crown class code for the tree**

DEFINITION:

The crown class of a tree indicates the tree's social position in the stand by evaluating the amount of sunlight the tree receives. Crown classes can be dominant (2), codominant (3), intermediate(4), or overtopped/suppressed (5). Crown class is calculated for all live trees in FIA inventories and on all trees >= 1" in R5, R6, RMRS, and BLMWO inventories.

RMRS Crown class was not estimated on woodland species.

The original codes in the R6 and BLMWO inventories were recoded as follows:
IDB code=2 R6/BLMWO codes = 1,2,6,7
IDB code=3 R6/BLMWO codes = 3
IDB code=4 R6/BLMWO codes = 4,8
IDB code=5 R6/BLMWO codes = 5,9

The original codes in the R5 inventory were recoded as follows:
IDB code=2 R5 codes = D,P
IDB code=3 R5 codes = C
IDB code=4 R5 codes = I
IDB code=5 R5 codes = S

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **CROWN_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **Method used to estimate the crown width**

DEFINITION:

Identifies the method used to determine crown width.
Crown widths are either field-measured or estimated in the office with FVS equations.
The Region 6 and BLMWO inventories measured crown width on a subset of trees (the growth sample trees). The remaining trees (>=1") had crown width estimated with FVS equations.

All trees in the R5, RMRS, and FIA inventories have an estimated (calculated) crown width, using FVS equations based on DBH.

Refer to the technical documentation for a description of the crown width estimation procedure and a list of equations.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **CROWN_RATIO**

CODED? **Yes**

BRIEF DESCRIPTION: **Compacted crown ratio of the tree**

DEFINITION:

A code that indicates the percent of a tree's total height that supports living crown (branches and foliage). Total height includes dead, broken or missing portions of the tree. If a tree had an uneven crown length, field crews estimated the size of the full crown by ocularly transferring lower branches on the fuller side into the "holes" observed on the sparse side. This is referred to as the 'compacted' crown ratio. Each tree was placed into a 10-percent class, based on the percent recorded by field crews.

RMRS Crown ratio was not estimated on woodland species

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **CROWN_WIDTH**

CODED? **No**

BRIEF DESCRIPTION: **Width of the live crown**

DEFINITION:

The width of the live crown is either the measured or estimated distance of the lowest part of the crown, from one side to the other, in feet.
The Region 6 and BLMWO inventories measured crown width on a subset of trees (the growth sample trees). The remaining trees (>=1") had crown width estimated with equations.

All trees in the R5, RMRS, and FIA inventories have an estimated crown width, using equations based on DBH.

Refer to the technical documentation for a description of the crown width estimation procedure and a list of equations.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **CULL_BD_FT**

CODED? **No**

BRIEF DESCRIPTION: **Percent of boardfoot volume lost (culled) because of defect or rot**

DEFINITION:

The percent of boardfoot volume of a live growing stock tree that is lost or unusable due to defects including broken sections, missing tops, forks and crooks along the tree bole; or due to rot or other damaging agent. Recorded for trees >= 5".

The percent of volume lost was recorded in the field for FIA inventories. It is a visual estimate of the percent of total tree volume that is lost due to defects and damaging agents. It includes the estimates of cull-rot and cull-other described in FIA field manuals.

For the R5 inventory, the percent cull was taken from a crosswalk table in Appendix G of the R5 FIA user's guide. This table relates the defect/damage codes of each tree to an estimate of the percent sound for boardfoot volume. Percent cull was calculated by 100-percent sound.

For R6, RMRS, and BLMWO, the percent cull was taken from the defect deduction data recorded on each tree in the inventory.

This column is used to reduce the gross volume of a tree when calculating net volume.

Net boardfoot volume = gross boardfoot volume * ((100- CULL_BD_FT)/100)

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **CULL_CUBIC**

CODED? **No**

BRIEF DESCRIPTION: **Percent of cubic volume lost (culled) because of defect or rot**

DEFINITION:

The percent of cubic volume of a live growing stock tree that is lost or unusable due to defects including broken sections, missing tops, forks and crooks along the tree bole; or due to rot or other damaging agent. Recorded for trees >= 5" .

The percent of volume lost was recorded in the field for FIA inventories. It is a visual estimate of the percent of total tree volume that is lost due to defects and damaging agents. It includes the estimates of cull-rot and cull-other described in FIA field manuals.

For the R5 inventory, the percent cull was taken from a crosswalk table in Appendix G of the R5 FIA user's guide. This table relates the defect/damage codes of each tree to an estimate of the percent sound for boardfoot volume. Percent cull was calculated by 100-percent sound.

For R6, RMRS, and BLMWO, the percent cull was taken from the defect deduction data recorded on each tree in the inventory. CULL_CUBIC is the same as CULL_BD_FT.

This column is used to reduce the gross volume of a tree when calculating net volume.

Net cubic volume = gross cubic volume * ((100- CULL_CUBIC)/100)

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DATA_SOURCE**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies the source of the inventory data**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from nine different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by five individual forest inventory programs from two agencies, including the Forest Inventory and Analysis program of the Pacific Northwest Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, the Natural Resource Inventory program of the Bureau of Land Management in western Oregon and the Interior West Forest Inventory and Analysis Program of the Rocky Mountain Research Station. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Rocky Mountain Research Station's Interior West FIA unit inventoried small pieces of Washington (Kaniksu NF) and California (Toiyabe NF) and are coded RMRS.

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DBH_1YR_AGO_CM**

CODED? **No**

BRIEF DESCRIPTION: **An estimate of dbh for the year prior to the current measurement, in centimeters**

DEFINITION:

The diameter at breast height of a tree estimated for one year previous to the current inventory. It is computed for all live trees >= 5" (12.5cm) dbh. The estimated dbh is used for calculating tree volume for the previous year, which is an estimate for current annual volume growth for the tree. This dbh is generated from an equation that uses the annual squared diameter growth (ASDG_CM) as follows:

DBH_1YR_AGO_CM = SQRT(DBH_CM**2 - ASDG_CM)

See these column definitions for more details:
DBH_CM
ASDG_CM
VOL_AC_GRS_CA_GRW_FT3
VOL_AC_NET_CA_GRW_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DBH_1YR_AGO_IN**

CODED? **No**

BRIEF DESCRIPTION: **An estimate of dbh for the year prior to the current measurement, in inches**

DEFINITION:

The diameter at breast height of a tree estimated for one year previous to the current inventory. It is computed for all live trees >= 5" (12.5cm) dbh. The estimated dbh is used for calculating tree volume for the previous year, which is an estimate for current annual volume growth for the tree. This dbh is generated from an equation that uses the annual squared diameter growth (ASDG_IN) as follows:

DBH_1YR_AGO_IN = SQRT(DBH_IN**2 - ASDG_IN)

See these column definitions for more details:
DBH_IN
ASDG_IN
VOL_AC_GRS_CA_GRW_FT3
VOL_AC_NET_CA_GRW_FT3

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
TREE_LIVE	**DBH_CLASS**	

BRIEF DESCRIPTION: **Diameter class for the tree**

DEFINITION:

Each tree is assigned to a 2-inch diameter class based on it's dbh. Classes begin with 'seedling' and then identify 2-inch classes from 1.0 - 2.9 to 47.0 - 48.9, with the final class being > 48.9 inches. This column contains the actual text describing the diameter class (i.e. 9.0 - 10.9).

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DBH_CM**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height, cm**

DEFINITION:

Diameter at breast height (dbh) is the diameter of the tree bole, in centimeters, measured at a point that is 1.37 meters above the forest floor, on the uphill side of the tree. A diameter is recorded for all trees. Seedlings are trees with a dbh < 2.54cm (1") and are given a value of '.1' in the database. Seedlings are also identified by the column SEEDLING_YN = Y and have a value for the number of seedlings entered in TREE_COUNT.

Note for R5 and RMRS: The diameter recorded here is measured at the root collar (DRC) for the woodland species.

For R6 and BLMWO, hardwoods were group tallied and placed in a 2-inch class. These trees have a minimal amount of measurements recorded on them. They have a value entered in TREE_COUNT which is used to expand per-acre estimates such as TPA.

See these column definitions for more details:
DBH_EST_METHOD

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DBH_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **The method used to obtain the tree diameter**

DEFINITION:

A code that indicates whether the dbh was estimated or measured. If estimated, the code describes the method used to calculate dbh. This column refers to the dbh at the current or most recent inventory (DBH_CM or DBH_IN). A similar column (PREV_DBH_EST_METHOD) indicates whether the previous dbh was estimated or measured. A dbh can be measured in the field, estimated in the field (rarely), estimated in the office using estimated or measured diameter increments , or estimated in the office using equations that calculate ASDG. The majority of dbh's were measured in the current inventory.

See these column definitions for more details:
ASDG_IN
ASDG_CM
DBH_INC_10YR_IN

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DBH_IN**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height, inches**

DEFINITION:

Diameter at breast height (dbh) is the diameter of the tree bole, in inches, measured at a point that is 4.5 feet above the forest floor, on the uphill side of the tree. A diameter is recorded for all trees. Seedlings are trees with a dbh < 1" (2.54cm) and are given a value of '.1' in the database. Seedlings are also identified by the column SEEDLING_YN = Y, and have a value for the number of seedlings entered in TREE_COUNT.

Note for R5 and RMRS: The diameter recorded here is measured at the root collar (DRC) for the woodland species.

For R6 and BLMWO, hardwoods were group tallied and placed in a 2-inch class. These trees have a minimal amount of measurements recorded on them. They have a value entered in TREE_COUNT which is used to expand per-acre estimates such as TPA.

See these column definitions for more details:
DBH_EST_METHOD

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DBH_INC_10YR_CM**

CODED? **No**

BRIEF DESCRIPTION: **The diameter increment during the remeasurement period, in centimeters**

DEFINITION:

The diameter increment of a tree is the increase in dbh that occurred during the past remeasurement period, in centimeters. The remeasurement period differs among the various inventories (DATA_SOURCE's) and is equal to the length in years between 2 points in time. For FIA periodic inventories it ranges from 7 to 15 years--the time between successive inventories. For R5, R6, and BLMWO there has been only one inventory (Panel 1) so, for the IDB the remeasurement period was set to 10 years. Diameter increments were either measured in the field, estimated in the office, or calculated by subtracting 2 measured dbh's.

In the field, radial increments were obtained by boring the tree at dbh, measuring the distance covered by the number of rings in the remeasurement period, and calculating the diameter increment, inside the bark. For R5, R6, and BLMWO inventories, increments were measured on a subset of all trees on a plot. For FIA inventories, increments were measured on all trees (>= 5" dbh) that were not measured previously (i.e. a new plot) and that were in condition class 1.

In the office, trees with no measured increments had increments estimated or calculated as follows: For trees with no current dbh because we were denied access to the plot, the plot was harvested, or another reason, an annual increment (ASDG) was calculated from equations. The 10-year diameter increment was then estimated from ASDG.

For R5, R6, RMRS, and BLMWO inventories, trees with no measured increments had the increment estimated by one of two methods. For R5, all missing increments were estimated with FVS equations. For R6 and BLMWO, missing increments were estimated by averaging other measured increments on the plot, when possible. Existing increments were grouped by plot, subplot, diameter class, and species for the average. This provided increments for the majority of trees. Progressively broader groups were formed to develop averages for all remaining trees with missing increments.

The method used to derive DBH_INC_10YR_CM is coded in the column DBH_INC_EST_METHOD.

Note that for FIA inventories, if 2 measured dbh's existed (a remeasured tree), the increment was not calculated or entered into the IDB. If an increment is needed, users can calculate the difference between the 2 measured diameters.

Diameter increments are needed to estimate the annual diameter growth of a tree. This can be used to estimate dbh for various points in time. The primary use of diameter growth in the IDB is to estimate the dbh for 1 year prior to the current inventory, which is needed to estimate the current annual growth volume for the tree.

See these column definitions for more details:
ASDG_CM
DBH_INC_EST_METHOD

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DBH_INC_10YR_IN**

CODED? **No**

BRIEF DESCRIPTION: **The diameter increment during the remeasurement period, in inches**

DEFINITION:

The diameter increment of a tree is the increase in dbh that occurred during the past remeasurement period, in inches. The remeasurement period differs among the various inventories (DATA_SOURCE's) and is equal to the length in years between 2 points in time. For FIA periodic inventories it ranges from 7 to 15 years--the time between successive inventories. For R5, R6, and BLMWO there has been only one inventory (Panel 1) so, for the IDB the remeasurement period was set to 10 years. Diameter increments were either measured in the field, estimated in the office, or calculated by subtracting 2 measured dbh's.

In the field, radial increments were obtained by boring the tree at dbh, measuring the distance covered by the number of rings in the remeasurement period, and calculating the diameter increment, inside the bark. For R5, R6, and BLMWO inventories, increments were measured on a subset of all trees on a plot. For FIA inventories, increments were measured on all trees (>= 5" dbh) that were not measured previously (i.e. a new plot) and that were in condition class 1.

In the office, trees with no measured increments had increments estimated or calculated as follows: For trees with no current dbh because we were denied access to the plot, the plot was harvested, or another reason, an annual increment (ASDG) was calculated from equations. The 10-year diameter increment was then estimated from ASDG.

For R5, R6, RMRS, and BLMWO inventories, trees with no measured increments had the increment estimated by one of two methods. For R5, all missing increments were estimated with FVS equations. For R6 and BLMWO, missing increments were estimated by averaging other measured increments on the plot, when possible. Existing increments were grouped by plot, subplot, diameter class, and species for the average. This provided increments for the majority of trees. Progressively broader groups were formed to develop averages for all remaining trees with missing increments.

The method used to derive DBH_INC_10YR_IN is coded in the column DBH_INC_EST_METHOD.

Note that for FIA inventories, if 2 measured dbh's existed (a remeasured tree), the increment was not calculated or entered into the IDB. If an increment is needed, users can calculate the difference between the 2 measured diameters.

Diameter increments are needed to estimate the annual diameter growth of a tree. This can be used to estimate dbh for various points in time. The primary use of diameter growth in the IDB is to estimate the dbh for 1 year prior to the current inventory, which is needed to estimate the current annual growth volume for the tree.

See these column definitions for more details:
ASDG_IN
DBH_INC_EST_METHOD

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DBH_INC_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **The method used to estimate a diameter increment.**

DEFINITION:

The method used to estimate a diameter increment. This code identifies whether the increment was measured or estimated in the office. For R5, R6, and BLMWO inventories, increments were measured on a subset of all trees on a plot. For FIA inventories, increments were measured on all trees (>= 5" dbh) that were not measured previously (i.e. a new plot) and that were in condition class 1.

In the office, trees with no measured increments had increments estimated or calculated as follows: For trees with no current dbh because we were denied access to the plot, the plot was harvested, or another reason, an annual increment (ASDG) was calculated from equations. The 10-year diameter increment was then estimated from ASDG.

For R5, R6, RMRS, and BLMWO inventories, trees with no measured increments had the increment estimated by one of two methods. For R5, all missing increments were estimated with FVS equations. For R6, RMRS, and BLMWO, missing increments were estimated by averaging other measured increments on the plot, when possible. Existing increments were grouped by plot, subplot, diameter class, and species for the average. This provided increments for the majority of trees. Progressively broader groups were formed to develop averages for all remaining trees with missing increments.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DMG_AGENT_GROUP**

CODED? **Yes**

BRIEF DESCRIPTION: **Broad group of damaging agents**

DEFINITION:

A code that identifies a broad group or category of damaging agents. The procedure to identify and code damaging agents on a tree, differs by DATA_SOURCE. For analysis purposes, a common coding system was developed to place all trees in broad groups to allow comparison of trees among all inventories in the IDB. Region 6 and BLM inventories recorded 3 separate detailed damage codes and severity codes for each tree, Region 5 recorded 1 damage code and no severity rating, and FIA differed among the inventories. RMRS recorded 3 damage codes but no severity rating. The IDB preserves these detailed codes in the columns: DMG_AGENT_REGION5, DMG_AGENT1_CODE, DMG_AGENT1_SEVERITY, DMG_AGENT2_CODE, DMG_AGENT2_SEVERITY, DMG_AGENT3_CODE, DMG_AGENT3_SEVERITY, and DWARF_MIST.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DMG_AGENT_REGION5**

CODED? **Yes**

BRIEF DESCRIPTION: **Damage codes specific to Region 5.**

DEFINITION:

A code that identifies specific types of damage for each tree in the R5 inventory. These codes preserve the information about damage and defect that were recorded by R5 field crews. The R5 codes were different enough from the other DATA_SOURCE's that they could not be translated into a similar set of codes. For comparison purposes, the damage codes from all DATA_SOURCE's were organized into broad groups and assigned a DMG_AGENT_GROUP code which is common to all inventories in the IDB.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DMG_AGENT1_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **Agent, organism, or physical injury that severly impacts the growth of a tree**

DEFINITION:

The damaging agent code identifies the biotic or biotic agent that impacts the normal growth and yield of the tree, stand composition, and vegetative structure. This column is recorded for the R6, RMRS, BLMWO, and FIA inventories only. Agents include insects, fungi, mistletoe, fire, weather, suppression, deformities, and animal damage. Characteristics of serious damage must be present and the most significant damage is recorded 1st. Agents are grouped into Class 1 and Class 2 agents, where Class 1 agents are those that seriously affect vegetation over the inventory area and Class 2 agents are less serious and more local. Class 1 agents include root diseases, bark beetles, defoliating insects, and dead/broken/missing tops. Field manuals for each inventory should be consulted for full descriptions of each agent. Class 1 agents are recorded before Class 2 agents.

Up to 3 damaging agents can be recorded on one tree.

See these columns for more information:
DMG_AGENT1_SEVERITY
DMG_AGENT2_CODE
DMG_AGENT2_SEVERITY
DMG_AGENT3_CODE
DMG_AGENT3_SEVERITY
DMG_AGENT_REGION5
DMG_AGENT_GROUP

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DMG_AGENT1_SEVERITY**

CODED? **Yes**

BRIEF DESCRIPTION: **Severity of the damaging agent on the tree**

DEFINITION:
Identifies the severity of the particular damaging agent recorded in the column DMG_AGENT1_CODE. Severity codes have different meanings for each group of damaging agents; refer to the IDB code definitions for information on each severity code.
The severity is the degree or extent of impact that the damaging agent has on the tree.

See these columns for more information:
DMG_AGENT1_CODE
DMG_AGENT2_CODE
DMG_AGENT2_SEVERITY
DMG_AGENT3_CODE
DMG_AGENT3_SEVERITY
DMG_AGENT_REGION5
DMG_AGENT_GROUP

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DMG_AGENT2_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **Agent, organism, or physical injury that severly impacts the growth of a tree**

DEFINITION:

The damaging agent code identifies the biotic or abiotic agent that impacts the normal growth and yield of the tree, stand composition, and vegetative structure. This column is recorded for the R6, RMRS, BLMWO, and FIA inventories only. Agents include insects, fungi, mistletoe, fire, weather, suppression, deformities, and animal damage. Characteristics of serious damage must be present and the most significant damage is recorded 1st. Agents are grouped into Class 1 and Class 2 agents, where Class 1 agents are those that seriously affect vegetation over the inventory area and Class 2 agents are less serious and more local. Class 1 agents include root diseases, bark beetles, defoliating insects, and dead/broken/missing tops. Field manuals for each inventory should be consulted for full descriptions of each agent. Class 1 agents are recorded before Class 2 agents.

See these columns for more information:
DMG_AGENT2_SEVERITY
DMG_AGENT1_CODE
DMG_AGENT1_SEVERITY
DMG_AGENT3_CODE
DMG_AGENT3_SEVERITY
DMG_AGENT_REGION5
DMG_AGENT_GROUP

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DMG_AGENT2_SEVERITY**

CODED? **Yes**

BRIEF DESCRIPTION: **Severity of the damaging agent on the tree**

DEFINITION:
Identifies the severity of the particular damaging agent recorded in the column DMG_AGENT2_CODE. Severity codes have different meanings for each group of damaging agents; refer to the IDB code definitions for information on each severity code.
The severity is the degree or extent of impact that the damaging agent has on the tree.

See these columns for more information:
DMG_AGENT2_CODE
DMG_AGENT1_CODE
DMG_AGENT1_SEVERITY
DMG_AGENT3_CODE
DMG_AGENT3_SEVERITY
DMG_AGENT_REGION5
DMG_AGENT_GROUP

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DMG_AGENT3_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **Agent, organism, or physical injury that severly impacts the growth of a tree**

DEFINITION:

The damaging agent code identifies the biotic or abiotic agent that impacts the normal growth and yield of the tree, stand composition, and vegetative structure. This column is recorded for the R6, RMRS, BLMWO, and FIA inventories only. Agents include insects, fungi, mistletoe, fire, weather, suppression, deformities, and animal damage. Characteristics of serious damage must be present and the most significant damage is recorded 1st. Agents are grouped into Class 1 and Class 2 agents, where Class 1 agents are those that seriously affect vegetation over the inventory area and Class 2 agents are less serious and more local. Class 1 agents include root diseases, bark beetles, defoliating insects, and dead/broken/missing tops. Field manuals for each inventory should be consulted for full descriptions of each agent. Class 1 agents are recorded before Class 2 agents.

See these columns for more information:
DMG_AGENT3_SEVERITY
DMG_AGENT1_CODE
DMG_AGENT1_SEVERITY
DMG_AGENT2_CODE
DMG_AGENT2_SEVERITY
DMG_AGENT_REGION5
DMG_AGENT_GROUP

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DMG_AGENT3_SEVERITY**

CODED? **Yes**

BRIEF DESCRIPTION: **Severity of the damaging agent on the tree**

DEFINITION:

Identifies the severity of the particular damaging agent recorded in the column DMG_AGENT3_CODE. Severity codes have different meanings for each group of damaging agents; refer to the IDB code definitions for information on each severity code.
The severity is the degree or extent of impact that the damaging agent has on the tree.

See these columns for more information:
DMG_AGENT3_CODE
DMG_AGENT1_CODE
DMG_AGENT1_SEVERITY
DMG_AGENT2_CODE
DMG_AGENT2_SEVERITY
DMG_AGENT_REGION5
DMG_AGENT_GROUP

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **DWARF_MIST**

CODED? **Yes**

BRIEF DESCRIPTION: **Degree of dwarf or leafy mistletoe infection on the tree.**

DEFINITION:

Indicates the degree of infection of dwarf mistletoe on softwoods; or the presence of leafy mistletoe on hardwoods, juniper, and incense cedar trees. The 6-class dwarf mistletoe rating system developed by Hawksworth, 1961 was used to classify softwoods (other than juniper and incense cedar).

For softwoods other than juniper and incense cedar:
(For trees >= 3" in FIA inventories and all trees in R5, R6, and BLMWO)
Each tree is evaluated by observing the degree of infection in the crown. The crown is divided into thirds. Each section is given a score of 0 (no infection), 1 (50% or less of the branches are infected and no brooms present), or 2 (> 50% of the branches are infected or at least one broom present). If mistletoe is seen on the tree bole it is considered a branch infection. The value entered into this column is the sum of the scores in each section. The maximum value possible is 6.
(For trees >= 3" in FIA inventories) The crown is divided into halves. Each half is given a score of 0 (no infection), 1 (infection observed in either half but not both halves), or 2 (infection observed in both halves or at least one broom present anywhere in the crown).

Leafy mistletoe is recorded for hardwoods, juniper, and incense cedar in FIA inventories:
Each tree is rated simply as 0 (none present) or 7 (leafy mistletoe present).

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **FOREST_OR_BLM_DISTRICT**

CODED? **Yes**

BRIEF DESCRIPTION: **Administrative National Forest code**

DEFINITION:

A numeric code for the National Forest or BLM district where the field plot is located. Region 5 has 18 individual National Forests, Region 6 has 19 National Forests, and the BLM has 6 districts in western Oregon. Inventories are generally organized and compiled by Forest or BLM district. In addition there is one forest in Region 1 in Washington and one forest in Region 4 in California.

The FOREST_OR_BLM_DISTRICT code combined with CNTY and PLOT (plot number) uniquely identify each plot location in the R5 data source. For R6 and BLMWO as well as RMRS data sources the plot number is unique. However, it is recommended that the plot ID column in this table be used to uniquely identify every plot in the database, because FIA inventories require state and county along with plot number to be unique. The PLOT_ID column gets rid of the need to include multiple columns to uniquely identify a plot.

The FOREST_OR_BLM_DISTRICT column is blank for FIA inventories.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **GS_TREE_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Growing stock tree**

DEFINITION:
A growing stock tree is a live tree of commercial species, excluding cull trees where cull is due to rot, suppression, or excessive deformity (i.e. does not include sound or rotten culls). A growing stock tree is often referred to as a live, non-cull tree. Most summaries of live tree data select only growing stock trees. When information on non-growing stock trees is needed, it is often summarized and displayed as sound cull and rotten cull. Use the TREE_CLASS codes to identify sound or rotten cull trees.

Select GS_TREE_YN=Y to identify live, non cull trees.

A growing stock tree is different from the term growing stock volume:
Cubic growing stock volume is the cubic volume of a growing stock tree that is >= 5" dbh (GS_VOL_TREE_YN=Y). Boardfoot sawtimber volume is the boardfoot volume of a growing stock tree that has a dbh >= 9" for softwoods or a dbh >= 11" for hardwoods (GS_TREE_YN=Y and SAWTIMBER_YN=Y). A growing stock tree is simply a live, non-cull tree of any size (GS_TREE_YN=Y).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees and coded as GS_VOL_TREE_YN=Y. For example in the IDB, 12.5cm=4.9" and is coded as GS_VOL_TREE_YN=N. To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use net volume on trees based on English units, select GS_VOL_TREE_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 12.5cm.]

Sawtimber trees:
The diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. A slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N. The volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis of sawtimber are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Summary tables in most of the standard FIA inventory resource bulletins display summaries of cubic growing stock volume and boardfoot sawtimber volume.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **GS_VOL_TREE_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Growing stock volume tree for cubic volume summaries**

DEFINITION:
A growing stock volume tree is a growing stock tree that is >= 5" dbh. Excludes trees that are classified as sound or rotten cull (see TREE_CLASS and GS_TREE_YN). This column provides an easy way to select trees that are commonly used to summarize or analyze cubic growing stock volume according to the standard FIA definition of growing stock.

When summarizing cubic volume, select trees where GS_VOL_TREE_YN=Y.

A growing stock tree is different from the term growing stock volume:
Cubic growing stock volume is the cubic volume of a growing stock tree that is >= 5" dbh (GS_VOL_TREE_YN=Y). A growing stock tree is simply a live, non-cull tree of any size (GS_TREE_YN=Y).

Note, for boardfoot volume:
Boardfoot sawtimber volume is the boardfoot volume of a growing stock tree that has a dbh >= 9" for softwoods or a dbh >= 11" for hardwoods. To summarize this volume select: GS_TREE_YN=Y and SAWTIMBER_YN=Y.

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees and coded as GS_VOL_TREE_YN=Y. For example in the IDB, 12.5cm=4.9" and is coded as GS_VOL_TREE_YN=N. To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use net volume on trees based on English units, select GS_VOL_TREE_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 12.5cm.]

Sawtimber trees:
The diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. A slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N. The volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis of sawtimber are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Summary tables in most of the standard FIA inventory resource bulletins display summaries of cubic growing stock volume and boardfoot sawtimber volume.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **HT_1YR_AGO_FT**

CODED? **No**

BRIEF DESCRIPTION: **An estimate of height for the year prior to the current inventory, in feet**

DEFINITION:

The height of a tree estimated for one year prior to the current inventory. It is computed for all live trees >= 5" (12.5cm) dbh. The estimated height is used for calculating the tree volume for the previous year, which is an estimate for current annual volume growth of the tree. This height is generated from an equation that uses the annual height growth (AHG_FT) as follows:
HT_1YR_AGO_FT = HT_FT - AHG_FT

RMRS HT_1YR_AGO_FT not estimated on woodland species.

See these columns for more information:
HT_FT
AHG_FT

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **HT_1YR_AGO_M**

CODED? **No**

BRIEF DESCRIPTION: **An estimate of height for the year prior to the current inventory, in meters**

DEFINITION:

The height of a tree estimated for one year prior to the current inventory. It is computed for all live trees >= 12.5cm (5") dbh. The estimated height is used for calculating the tree volume for the previous year, which is an estimate for current annual volume growth for the tree. This height is generated from an equation that uses the annual height growth (AHG_M) as follows:
HT_1YR_AGO_M = HT_M - AHG_M

RMRS HT_1YR_AGO_FT not estimated on woodland species.

See these columns for more information:
HT_M
AHG_M

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **HT_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **Method used to estimate tree height**

DEFINITION:

A code indicating how a tree height was estimated. Heights were either measured in the field, visually estimated in the field, or estimated in the office with equations. Every tree >= 1" in the IDB has a height because total stem volume is calculated for each tree. Heights were measured on only a subset of trees in each inventory. The remaining trees had heights estimated in the field by crews while still on the plot or had heights estimated in the office with a variety of equations.

For R5, R6, and BLMWO heights were estimated with national FVS equations. These equations were specific to the FVS Variant and species and required dbh as an input.

For FIA, heights were estimated with equations based on site index studies and calibrated with data from other measured heights in the inventory. These equations required that the tree have a height measured or estimated in the previous inventory. In the cases where no previous height was available for the tree, predictive equations developed from other trees with measured heights in the same inventory were used. These equations were primarily based on the current dbh of the tree.

The HT_EST_METHOD code indicates if the tree was measured, field-estimated, estimated from FVS equations, estimated from site index based equations, or estimated from other predictive equations.

Refer to the technical documentation for more information on height estimation and AHG.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **HT_FT**

CODED? **No**

BRIEF DESCRIPTION: **Total height of the tree, in feet**

DEFINITION:

The total height of a tree, either measured or estimated, in feet. Total height is the distance from the base of the tree (on the uphill side) to the top of the terminal leader. Heights were either measured in the field, visually estimated in the field, or estimated in the office with equations. Every tree in the IDB has a height because total stem volume is calculated for every tree >= 1" dbh. Heights were measured on only a subset of trees in each inventory. The remaining trees had heights either estimated in the field while crews were still on the plot or had heights estimated in the office with equations.

Measured heights were taken on trees with normally-formed tree boles, with no deformities or missing tops.

Estimated total heights in the R5, R6, and BLMWO inventories were calculated with the national FVS height estimation equations. These equations were specific to the FVS Variant and species and required dbh as an input. Heights were not estimated in the field in these inventories. If a tree with a measured height had a damage code for a missing top, the height was replaced with a height estimated from an FVS equation.

Office-estimated heights in FIA inventories were calculated with equations that were based on site index studies and calibrated with data from other measured heights in the inventory. These equations required that the tree have a height measured or estimated in the previous periodic inventory. In the cases where no previous height was available for the tree, a different set of predictive equations were developed from other trees in the inventory with measured heights. These equations were primarily based on the current dbh and age of the tree.

Field estimated heights in FIA inventories were ocularly estimated by crews. If a tree had a missing or broken top, the tree was measured to the broken point and the length of the missing top was estimated by observing other trees in the stand or by measuring the top if it was located on the ground. This is often referred to as a 'reconstructed' height. In FIA inventories, estimated heights always end in '0', while measured heights end in a non-zero number.

The method used to estimate heights is coded in the column HT_EST_METHOD.

Please refer to the technical documentation for more information on height estimation and a description of the equations. Field manuals are also a good source of information.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **HT_M**

CODED? **No**

BRIEF DESCRIPTION: **Total height of the tree, in meters**

DEFINITION:

The total height of a tree, either measured or estimated, in meters. Total height is the distance from the base of the tree (on the uphill side) to the top of the terminal leader. Heights were either measured in the field, visually estimated in the field, or estimated in the office with equations. Every tree in the IDB has a height because volume is calculated for every tree >= 2.5cm dbh. Heights were measured on only a subset of trees in each inventory. The remaining trees had heights estimated in the field while crews were still on the plot or had heights estimated in the office with a variety of equations.

Measured heights were taken on trees with normally-formed tree boles, with no deformities or missing tops. In some cases, R5 allowed measured heights on trees with no top if the crews could find and measure the intact top on the ground.

Estimated heights in the R5, R6, and BLMWO inventories were calculated with the national FVS height estimation equations. These equations were specific to the FVS Variant and species and required dbh as an input. Heights were not estimated in the field in these inventories.
In R6 and BLM inventories, if the tree had a damage code that indicated it had a missing top and it had a measured height, it was assumed that the height was taken to the point where the top was out. Because volume equations require total height to the tree tip, heights on measured trees with their tops out were replaced with estimated heights using FVS equations. FVS equations estimate the total tree height from the tree's dbh. This insured that all trees have total heights.

Office-estimated heights in FIA inventories were calculated with equations based on site index studies and calibrated with data from other measured heights in the inventory. These equations required that the tree have a height measured or estimated in the previous periodic inventory. In the cases where no previous height was available for the tree, a different set of predictive equations were developed from other trees in the inventory with measured heights. These equations were primarily based on the current dbh and age of the tree.

Field estimated heights in FIA inventories were ocularly estimated by crews. If a tree had a missing or broken top, the tree was measured to the broken point and the length of the missing top was estimated by observing other trees in the stand or by measuring the top if it was located on the ground. This is often referred to as a 'reconstructed' height. Estimated heights always end in '0', while measured heights end in a non-zero number.

The method used to estimate height is coded in the column HT_EST_METHOD on each tree record.

Please refer to the technical documentation for more information on height estimation and a description of the equations. Field manuals are also a good source of information.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **HWD_FORM_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Hardwood form class**

DEFINITION:

Identifies whether at least one straight merchantable log is present in the tree. Coded for live hardwoods >= 5" (12.5cm) dbh, in the FIACA, FIAEO, FIAWO, and R5 inventories only. A straight log is one in which a line can be drawn through the centers of both ends of the log and does not pass outside the curve of the log. A code of 1 indicates that at least one merchantable log is present and a code of 2 indicates that no merchantable logs are present in the tree.

The hardwood form class is needed as an input to some hardwood volume equations.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **MORT_RATE**

CODED? **No**

BRIEF DESCRIPTION: **Mortality rate**

DEFINITION:

The mortality rate is the probability of a live tree dying in any given year. Mortality volume is the volume lost due to trees that died of natural causes. Mortality rates were developed from measured live and dead trees in each inventory (DATA_SOURCE) using species, breast height age (if available) and crown ratio information.
Because mortality occurs sporadically across the landscape, it is difficult to estimate the amount of mortality that has occurred in the inventory with plots located on a systematic grid. FIA uses a method of mortality estimation that is based on the probability that an individual tree may die in one year. This probability or rate, is derived from a ratio of dead-to-live trees that were tallied on plots throughout the inventory area. A mortality rate is developed for different groups (i.e. species and/or location), based on availability of data.
To estimate the volume of annual mortality represented by each tree in the inventory, the mortality rate is multiplied by the net volume of each live growing stock tree in the inventory. The result is that each live tree has an estimate for both live and mortality net volume on the same row in the live tree table.

Mortality rate is used to estimate the annual mortality volume/acre represented by the individual tree in the overall inventory as follows:

Mortality net volume/acre = (Net volume/acre)* (mortality rate)

Mortality volume, in turn, is used to estimate current annual net growth by subtracting mortality volume from gross growth volume.

See the technical documentation for details on Mortality rates.

See these column definitions for more details:
VOL_AC_ANN_MORT_FT3
VOL_AC_ANN_MORT_INTL_FT2
VOL_AC_ANN_MORT_SCR_FT2
VOL_AC_NET_CA_GRW_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PLOT**

CODED? **No**

BRIEF DESCRIPTION: **Original plot number**

DEFINITION:

The original numeric code that identified the individual field plot location for a given inventory (data source). This is the number used by field crews and office staff to identify all materials and information for that plot while compiling and executing the inventory. Some plot numbers are unique within a Forest and others are unique in the entire regional inventory. In FIA inventories most plot numbers are unique within a state and county.

Because of this variability in uniqueness from the many data sources in this database, it is recommended that the column PLOT_ID be used to uniquely identify every plot location in this database. ID is unique across all data sources and all inventories.

The column PLOT is useful to link to other databases that only contain the original plot number as an identifier.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **The plot area in each stratum**

DEFINITION:

The plot area. For FIA and Region 5, this is the summed area of the subplots, where subplot area is the largest area on which trees were measured. For Region 6 and BLM, this is also the largest area on which trees were measured, which was a circle encompassing the subplots.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PLOT_SIZE**

CODED? **Yes**

BRIEF DESCRIPTION: **Size of the plot**

DEFINITION:

The size of the plot where the tree was sampled. There are many plot sizes used in the inventory designs of each DATA_SOURCE. Most plots are nested within each other. Sizes ranged from small fixed radius plots to variable radius plots. Plot sizes differed based on the component of the forest being measured.

See the code definitions for a description of each plot size code.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **POLE_SIZE_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Poletimber sized tree**

DEFINITION:
Identifies whether a tree is of poletimber size as follows:
softwood trees must be >= 5" (12.5cm) dbh and < 9" (22.5cm), and
hardwood trees must be >= 5" (12.5cm) dbh and < 11" (27.5cm) in size.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PREV_DBH_CM**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height at the previous inventory, in centimeters**

DEFINITION:

Diameter at breast height (dbh) at the previous inventory is a measured or estimated dbh for the tree, approximately 10 years prior to the current inventory. Dbh is the diameter of the tree bole, in centimeters, measured at a point that is 1.37 meters above the forest floor, on the uphill side of the tree. A previous diameter was recorded for all trees except seedlings.

For FIA periodic inventories, this dbh was either measured during the last remeasurement cycle, estimated from measured increment cores (for trees >= 12.5cm) collected at the current inventory, or estimated from a predicted ASDG_CM. The remeasurement period is the number of years between successive periodic inventories, ranging from 7 to 13 years.

For R5, R6, RMRS, and BLMWO inventories, this dbh was never measured. It was estimated from measured increment cores (for trees >= 7.6cm) collected at the current inventory, or estimated from a predicted diameter increment using FVS equations. All trees with a dbh <7.6cm at the current inventory were assumed to be seedlings (PREV_DBH_CM=.1) at the previous inventory. The remeasurement period was set to 10 years for the purpose of calculating a previous dbh.

Note for R5: The diameter is measured at the root collar (DRC) for the woodland species western Juniper and Pinyon pine.

The method used to estimate previous dbh is coded in the column PREV_DBH_EST_METHOD.

Refer to the technical documentation for more information on estimating the previous dbh and estimating diameter increments.

See these column definitions for more details:
ASDG_CM
REM_PERIOD
PREV_DBH_EST_METHOD

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PREV_DBH_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **Method used to estimate the previous diameter**

DEFINITION:

Indicates the method used to estimate the diameter at breast height (dbh) for the previous inventory, approximately 10 years prior to the current inventory. A previous diameter was recorded for all trees except seedlings.

For FIA periodic inventories, this dbh was either measured during the last remeasurement cycle, estimated from measured increment cores (for trees >= 5", 12.5cm) collected at the current inventory, or estimated from a predicted ASDG. The remeasurement period is the number of years between successive periodic inventories, ranging from 7 to 15 years.

For R5, R6, RMRS, and BLMWO inventories, the previous dbh was never measured. It was estimated from measured increment cores (for trees >= 3", 7.6cm) collected at the current inventory, estimated from a predicted 10-year diameter increment using FVS equations, or estimated from average diameter increments measured on other trees on the plot. The remeasurement period was set to 10 years for the purpose of calculating a previous dbh.

Each method is coded in the database.

Refer to the technical documentation for more information on estimating the previous dbh and estimating diameter increments.

See these column definitions for more details:
ASDG_CM
ASDG_IN
REM_PERIOD
DBH_INC_10YR_IN
DBH_INC_10YR_CM

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PREV_DBH_IN**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height at the previous inventory, in inches**

DEFINITION:

Diameter at breast height (dbh) at the previous inventory is a measured or estimated dbh for the tree, approximately 10 years prior to the current inventory. Dbh is the diameter of the tree bole, in inches, measured at a point that is 4.5 feet above the forest floor, on the uphill side of the tree. A previous diameter was recorded for all trees except seedlings.

For FIA periodic inventories, this dbh was either measured during the last remeasurement cycle, estimated from measured increment cores (for trees >= 5") collected at the current inventory, or estimated from a predicted ASDG_CM. The remeasurement period is the number of years between successive periodic inventories, ranging from 7 to 13 years.

For R5, R6, RMRS, and BLMWO inventories, this dbh was never measured. The PREV_DBH_IN was estimated from measured increment cores (for trees >= 3") collected at the current inventory, or estimated from a predicted diameter increment using FVS equations. All trees with a dbh < 3" at the current inventory were assumed to be seedlings (PREV_DBH_IN=.1) at the previous inventory. The remeasurement period was set to 10 years for the purpose of calculating a previous dbh.

Note for R5: The diameter is measured at the root collar (DRC) for the woodland species western Juniper and Pinyon pine.

The method used to estimate previous dbh is coded in the column PREV_DBH_EST_METHOD.

Refer to the technical documentation for more information on estimating the previous dbh and estimating diameter increments.

See these column definitions for more details:
ASDG_IN
REM_PERIOD
PREV_DBH_EST_METHOD

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PREV_HT_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **Method used to estimate total tree height at the previous inventory**

DEFINITION:

A code indicating how a tree height was estimated for the previous inventory, approximately 10 years prior to the current inventory.
For FIA periodic inventories, plots were actually installed at a previous inventory and heights were either estimated or measured at that point in time. The remeasurement period between successive inventories ranged from 7 to 15 years, for FIA inventories.

For R5, R6, and BLMWO inventories, there has been only one inventory cycle (panel 1) with no remeasurement at the time this database was created. Because an estimate of height for a previous inventory was needed for volume growth calculations, an artificial period of 10 years was set as the remeasurement period for the R5, R6, and BLMWO inventories.

Heights were either measured in the field, visually estimated in the field, or estimated in the office with equations. Every tree >= 1" in the IDB has a height because total stem volume is calculated for each tree. Heights were measured on only a subset of trees in each inventory. The remaining trees had heights estimated in the field by crews while still on the plot or had heights estimated in the office with a variety of equations.

For R5, R6, and BLMWO heights were estimated with national FVS equations. These equations were specific to the FVS Variant and species and required dbh as an input.

For FIA, heights were estimated with equations based on site index studies and calibrated with data from other measured heights in the inventory. These equations required that the tree have a height measured or estimated in the previous inventory. In the cases where no previous height was available for the tree, predictive equations developed from other trees with measured heights in the same inventory were used. These equations were primarily based on the current dbh of the tree.

For RMRS data_source Prev_ht_est_method was not recorded for woodland species.

The PREV_HT_EST_METHOD code indicates if the previous height was measured, field-estimated, estimated from FVS equations, estimated from site index based equations, or estimated from other predictive equations.

The annual height growth estimate was used to calculate most previous heights.

Refer to the technical documentation for more information on height estimation and AHG.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PREV_HT_FT**

CODED? **No**

BRIEF DESCRIPTION: **Total height of the tree at the previous inventory, in feet**

DEFINITION:

The total height of a tree at the previous inventory is the distance from the base of the tree (on the uphill side) to the top of the terminal leader, in feet, at a point in time approximately 10 years prior to the current inventory. Every tree (>= 1" dbh) in the IDB has a previous height.
For FIA periodic inventories, plots were actually installed at a previous inventory and heights were either estimated or measured at that point in time. The remeasurement period between successive inventories ranged from 7 to 15 years, for FIA inventories.

For R5, R6, and BLMWO inventories, there has been only one inventory cycle (panel 1) with no remeasurement at the time this database was created. Because an estimate of height and dbh for a previous inventory was needed for volume growth calculations, an artificial period of 10 years was set as the remeasurement period for the R5, R6, and BLMWO inventories.

For RMRS data_source no prev_ht_ft was recorded on woodland species.

For FIA inventories, previous heights were either measured in the field, visually estimated in the field, or estimated in the office with equations. Measured heights were taken on trees with normally-formed tree boles, with no deformities or missing tops. But, heights were measured on only a subset of trees in each inventory. The remaining trees had heights either estimated in the field while crews were still on the plot or had heights estimated in the office with equations. Field estimated heights were ocularly estimated by crews. If a tree had a missing or broken top, the tree was measured to the broken point and the length of the missing top was estimated by observing other trees in the stand or by measuring the top if it was located on the ground. This was often referred to as a 'reconstructed' height. In FIA inventories, estimated heights always end in '0', while measured heights end in a non-zero number.
Office-estimated heights in FIA inventories were calculated with equations that were based on site index studies and calibrated with data from other measured heights in the inventory. These equations required that the tree have a height measured or estimated in the current periodic inventory. In the cases where no current height was available for the tree, a different set of predictive equations were used, which were developed from other measured heights in the inventory. These equations were primarily based on the current dbh and age of the tree.

For R5, R6, and BLMWO inventories, all previous heights were estimated national FVS height estimation equations. These equations were specific to the FVS Variant and species and required dbh as an input. Trees with no measured height at the current inventory had both current and previous height calculated from DBH_IN or PREV_DBH_IN. Trees WITH a measured height at the current inventory had the previous height estimated from a calibrated annual height growth (AHG_FT) as follows:
PREV_HT=HT_FT - (AHG_FT * 10)
Refer to the definition of AHG_FT for more details.

The method used to estimate previous height is coded in the column PREV_HT_EST_METHOD.

Please refer to the technical documentation for more information on height estimation, a description of the equations, and AHG_FT. Field manuals are also a good source of information about how crews measured heights.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **PREV_HT_M**

CODED? **No**

BRIEF DESCRIPTION: **Total height of the tree at the previous inventory, in meters**

DEFINITION:

The total height of a tree at the previous inventory is the distance from the base of the tree (on the uphill side) to the top of the terminal leader, in meters, at a point in time approximately 10 years prior to the current inventory. Every tree (>= 1" dbh) in the IDB has a previous height.
For FIA periodic inventories, plots were actually installed at a previous inventory and heights were either estimated or measured at that point in time. The remeasurement period between successive inventories ranged from 7 to 15 years, for FIA inventories.

For R5, R6, and BLMWO inventories, there has been only one inventory cycle (panel 1) with no remeasurement at the time this database was created. Because an estimate of height and dbh for a previous inventory was needed for volume growth calculations, an artificial period of 10 years was set as the remeasurement period for the R5, R6, and BLMWO inventories.

For RMRS data_source no prev_ht_ft was recorded on woodland species.

For FIA inventories, previous heights were either measured in the field, visually estimated in the field, or estimated in the office with equations. Measured heights were taken on trees with normally-formed tree boles, with no deformities or missing tops. But, heights were measured on only a subset of trees in each inventory. The remaining trees had heights either estimated in the field while crews were still on the plot or had heights estimated in the office with equations. Field estimated heights were ocularly estimated by crews. If a tree had a missing or broken top, the tree was measured to the broken point and the length of the missing top was estimated by observing other trees in the stand or by measuring the top if it was located on the ground. This was often referred to as a 'reconstructed' height. In FIA inventories, estimated heights always end in '0', while measured heights end in a non-zero number.
Office-estimated heights in FIA inventories were calculated with equations that were based on site index studies and calibrated with data from other measured heights in the inventory. These equations required that the tree have a height measured or estimated in the current periodic inventory. In the cases where no current height was available for the tree, a different set of predictive equations were used, which were developed from other measured heights in the inventory. These equations were primarily based on the current dbh and age of the tree.

For R5, R6, and BLMWO inventories, all previous heights were estimated national FVS height estimation equations. These equations were specific to the FVS Variant and species and required dbh as an input. Trees with no measured height at the current inventory had both current and previous height calculated from DBH_CM or PREV_DBH_CM. Trees WITH a measured height at the current inventory had the previous height estimated from a calibrated annual height growth (AHG_M) as follows:
PREV_M=HT_M - (AHG_M * 10)
Refer to the definition of AHG_M for more details.

The method used to estimate previous height is coded in the column PREV_HT_EST_METHOD.

Please refer to the technical documentation for more information on height estimation, a description of the equations, and AHG_M. Field manuals are also a good source of information about how crews measured heights.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
TREE_LIVE	**SAPLING_YN**	

BRIEF DESCRIPTION: **Sapling sized tree**

DEFINITION:

Identifies whether a tree is of sapling size as follows:
tree must be >= 1" (2.5cm) dbh and < 5" (12.5cm) dbh.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
TREE_LIVE	**SAWTIMBER_YN**	

BRIEF DESCRIPTION: **Sawtimber sized tree**

DEFINITION:
Identifies whether a tree is of sawtimber size as follows:
softwood trees must be >= 9" (22.5cm) and
hardwood trees must be >= 11" (27.5cm) in size.

This column is most often used when summarizing boardfoot volume as follows:
select trees where GS_TREE_YN=Y and SAWTIMBER_YN = Y.

Boardfoot volume is only summarized and reported for sawtimber sized trees.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **SEEDLING_YN**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies seedlings**

DEFINITION:
Identifies whether a tree is a seedling: the diameter is < 1" (2.54 cm) at dbh, or is not tall enough to reach breast height (4.5 feet).

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **STAND_POS**

CODED? **Yes**

BRIEF DESCRIPTION: **Stand position occupied by the tree**

DEFINITION:

A classification of live trees that separates the currently manageable part of the stand (mainstand) from the remnants of a previous stand (residual overstory) and/or young understory trees (futurestand).

Trees in the mainstand (STAND_POS = 1) are the primary group of trees evaluated when classifying the forest type, stand age, stand size, or other condition class level classification. These trees generally reflect the stand of trees that you 'see' when entering a forested area. Most trees in a stand and on a plot are mainstand trees.

A tree that characterizes the upper stand in the condition class is selected as the 'pivot tree' and used to determine a tree's stand position. The dbh of all live tally trees in the condition are compared to the dbh of the pivot tree to determine the stand position of the tally tree.

If stand position is zero, the trees are on a SLIVER condition where stand level classifications were determined by field calls; or on access denied plots where this column was not needed to project trees forward.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
TREE_LIVE	**STATE**	

BRIEF DESCRIPTION: **State where the plot is located**

DEFINITION:
A numeric code to identify the state where the plot is located. The states Oregon, California, and Washington are represented in this database.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **STK_EQN_RESULT**

CODED? **No**

BRIEF DESCRIPTION: **Stocking estimate for the tree, unaltered original result of the equation**

DEFINITION:

The individual stocking estimate for each tally tree on the plot, estimated for all live trees. This column contains the original calculated value from the stocking equation which has been discounted for the tree's social position and whether it's part of a clump of trees. A series of stocking estimates (STK_TYPE1, STK_TYPE2, STK_TYPE3, STK_TYPE4) are derived from this column, which adjust, proportion or expand the original stocking estimate. This column is not used directly in any of the algorithms that determine stand level classifications, instead it is an intermediate first step needed to derive the other stocking estimates.

Tree stocking estimates the contribution of each tree to the density of a normal stand (the value is expressed as a percent of normal density). This technique is based on area occupancy and reflects the ability of a tree to use the limited resources of a site (light, water, nutrients). Species with large, broad crowns, occupy more of the site and generally receive larger stocking values. Stocking equations were developed from the relationship between tree diameter and the average growing space occupied by trees in normal stands.

The general form of the stocking equation is:
STK_EQN_RESULT=(a * (DBH_CM** b) * TPH_SUBPLOT)
where: a and b are equation coefficients, and TPH_SUBPLOT is the number of trees per hectare this tree represents on the subplot where it was tallied.

Note that in the FIA data, conditions that are slivers have no stocking calculated for the trees. Stand level classifications are assigned by field crews and are not based on stocking estimates, therefore stocking values are not needed for each tree.

See these column definitions for more information:
STK_TYPE1
STK_TYPE2
STK_TYPE3
STK_TYPE4

See the technical documentation for a list of stocking equations used and the metadata tables that identify what equation was used for each species.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **STK_TYPE1**

CODED? **No**

BRIEF DESCRIPTION: **Adjusted, proportioned stocking estimate for the tree Used to calculate forest type and stand size.**

DEFINITION:
An individual stocking estimate for a tree which has been adjusted and proportioned, in percent. It is estimated for all live trees.

This stocking is used to calculate forest type and stand size.

This stocking is an estimate of the contribution of each live tree to the density of a normal stand, expressed as a percent of normal density, adjusted for factors influencing stocking, and proportioned across the subplot. This technique is based on area occupancy and reflects the ability of a tree to use the limited resources of a site (light, water, nutrients). Species with large, broad crowns, occupy more of the site and generally receive larger stocking values. Stocking equations were developed from the relationship between tree diameter and the average growing space occupied by trees in normal stands.

Factors that influence stocking include physical characteristics of the site that limit the density of trees ("normal stocking") in the stand and vegetation characteristics such as the presence of certain species which indicate an inherent inability of the site to grow trees. The proportioning procedure is necessary to limit the total stocking (in percent) to the condition class percent on each subplot, to avoid the possibility that the percent of total mainstand or total futurestand stocking exceeds the percent of the subplot in the condition class.

This column is used directly in the algorithm that determines the stand level classification of forest type and stand size. This is done by evaluating relative amounts of stocking in different categories or groups of the item to be classified.

This stocking is a condition class level stocking estimate.

Note that in the FIA data, conditions that are slivers have no stocking calculated for the trees. Stand level classifications are assigned by field crews and are not based on stocking estimates, therefore stocking values are not needed for each tree.

See these column definitions for more information:
FOR_TYPE
STAND_SIZE_CLASS
STK_TYPE2
STK_TYPE3
STK_TYPE4

See the technical documentation for a list of stocking equations, adjustment factors, and proportioning techniques. Refer to the metadata tables to identify what equation was used for each species.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **STK_TYPE2**

CODED? **No**

BRIEF DESCRIPTION: **Adjusted, expanded stocking estimate for the tree Used to calculate stand age.**

DEFINITION:
An individual stocking estimate for a tree which has been adjusted and expanded, in percent. It is estimated for all live trees.

This stocking is used to calculate stand age in all FIA inventories.

This stocking is an estimate of the contribution of each live tree to the density of a normal stand, expressed as a percent of normal density, adjusted for factors influencing stocking, expanded to the condition class level on the subplot, but is NOT proportioned across the subplots. This technique is based on area occupancy and reflects the ability of a tree to use the limited resources of a site (light, water, nutrients). Species with large, broad crowns, occupy more of the site and generally receive larger stocking values. Stocking equations were developed from the relationship between tree diameter and the average growing space occupied by trees in normal stands.

Factors that influence stocking include physical characteristics of the site that limit the density of trees ("normal stocking") in the stand and vegetation characteristics such as the presence of certain species which indicate an inherent inability of the site to grow trees. The proportioning procedure is necessary to limit the total stocking (in percent) to the condition class percent on each subplot, to avoid the possibility that the percent of total mainstand or total futurestand stocking exceeds the percent of the subplot in the condition class.

This column is used directly in the algorithm that determines the stand level classification of stand age in FIA inventories. This is done by evaluating relative amounts of stocking in different age classes.

This stocking is a subplot level stocking estimate.
It is also used to estimate management type, stage of development, and treatment opportunity in FIA inventory databases. This data is not included in the IDB.
Note that in the FIA data, conditions that are slivers have no stocking calculated for the trees. Stand level classifications are assigned by field crews and are not based on stocking estimates, therefore stocking values are not needed for each tree.

See these column definitions for more information:
STAND_AGE
STK_TYPE1
STK_TYPE3
STK_TYPE4

See the technical documentation for a list of stocking equations, adjustment factors, and proportioning techniques. Refer to the metadata tables to identify what equation was used for each species.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **STK_TYPE3**

CODED? **No**

BRIEF DESCRIPTION: **Unadjusted, proportioned stocking estimate for the tree An intermediate unexpanded stocking estimate.**

DEFINITION:

An intermediate stocking estimate for a tree which has been proportioned, in percent. It is estimated for all live trees.

This stocking is not used directly in any algorithms to classify stand characteristics in this database. It has been used in FIA inventories to help classify wildlife habitats because it is not adjusted for factors related to timber management.

Stocking is an estimate of the contribution of each live tree to the density of a normal stand, expressed as a percent of normal density. This column is NOT adjusted for factors influencing stocking, NOT expanded to the condition class level on the subplot, but IS proportioned across the subplots. The proportioning procedure is necessary to limit the total stocking (in percent) to the condition class percent on each subplot, to avoid the possibility that the percent of total mainstand or total futurestand stocking exceeds the percent of the subplot in the condition class.

This technique is based on area occupancy and reflects the ability of a tree to use the limited resources of a site (light, water, nutrients). Species with large, broad crowns, occupy more of the site and generally receive larger stocking values. Stocking equations were developed from the relationship between tree diameter and the average growing space occupied by trees in normal stands.

This stocking is a condition class level stocking estimate.

Note that in the FIA data, conditions that are slivers have no stocking calculated for the trees. Stand level classifications are assigned by field crews and are not based on stocking estimates, therefore stocking values are not needed for each tree.

See these column definitions for more information:
STK_TYPE2
STK_TYPE3
STK_TYPE4

See the technical documentation for a list of stocking equations, adjustment factors, and proportioning techniques. Refer to the metadata tables to identify what equation was used for each species.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **STK_TYPE4**

CODED? **No**

BRIEF DESCRIPTION: **Unadjusted, expanded stocking estimate for the tree**
An intermediate unproportioned stocking estimate.

DEFINITION:
An intermediate stocking estimate for a tree which has been expanded, in percent. It is estimated for all live trees.

This stocking is not used directly in any algorithms to classify stand characteristics in this database.

Stocking is an estimate of the contribution of each live tree to the density of a normal stand, expressed as a percent of normal density. This column is NOT adjusted for factors influencing stocking, NOT proportioned across the subplots, but IS expanded to the condition class level on the subplot, by dividing by the percent of the subplot area in the condition class (COND_WT_SUBPLOT).

This technique is based on area occupancy and reflects the ability of a tree to use the limited resources of a site (light, water, nutrients). Species with large, broad crowns, occupy more of the site and generally receive larger stocking values. Stocking equations were developed from the relationship between tree diameter and the average growing space occupied by trees in normal stands.

This stocking is a subplot level stocking estimate.

Note that in the FIA data, conditions that are slivers have no stocking calculated for the trees. Stand level classifications are assigned by field crews and are not based on stocking estimates, therefore stocking values are not needed for each tree.

See these column definitions for more information:
STK_TYPE1
STK_TYPE2
STK_TYPE3

See the technical documentation for a list of stocking equations, adjustment factors, and proportioning techniques. Refer to the metadata tables to identify what equation was used for each species.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_LIVE	**SUBPLOT_ID**	

BRIEF DESCRIPTION: **Unique row number in the SUBPLOT table**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Subplot (SUBPLOT) table. SUBPLOT_ID is a key field, used to join this table to the SUBPLOT table.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **SUBPLOT_NUM**

CODED? **Yes**

BRIEF DESCRIPTION: **Subplot number on the plot**

DEFINITION:

A number identifying the individual subplot location (point, stake position) in the plot cluster. Plots have a maximum of 5 subplots. For FIA subplots, the original subplot number recorded in the field is stored in the SUBPLOT table and called FIELD_SUBPLOT_NUMBER.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TPA**

CODED? **No**

BRIEF DESCRIPTION: **Trees per acre**

DEFINITION:

Trees per acre is the number of trees that one individual tally tree represents per acre in the condition class. TPA is calculated by averaging the subplot-level trees per acre (TPA_SUBPLOT) across the subplots in one condition as follows:

For one tree in one condition:
TPA= (TPA_SUBPLOT) / (SUBPLOT_COUNT_COND)

where SUBPLOT_COUNT_COND is the total number of subplots in the condition class. For FIA inventories where subplots might be split between conditions, this value includes whole and partial subplots. For R5, RMRS in CA, R6, BLMWO only one condition is assigned to the entire subplot, so this value is a count of whole subplots in one condition.

** Note that by dividing the TPA_SUBPLOT by the count of subplots in one condition, the TPA has essentially been weighted by the proportion of the plot in the condition (or, size of the condition). **

Another way of displaying the calculation above is:
TPA= [(TPA_SUBPLOT) / (Total number of subplots on the plot)] / COND_WT

The trees per acre are used to expand per-tree attributes to a per-acre estimate that the tree represents in the inventory. For example, cubic volume/tree * trees/acre = cubic volume per acre. TPA can be used to summarize tree density by averaging the TPA across conditions in the inventory.

This TPA is used for expanding tree attributes to the condition level, for summary and analysis.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPA and TPA_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, be aware that this TPA is weighted by COND_WT (see "Alternative_Estimation_procedures.doc")

See these columns for more information:
SUBPLOT_COUNT_COND
TPA_SUBPLOT
PLOT_SIZE

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TPA_SUBPLOT**

CODED? **No**

BRIEF DESCRIPTION: **Trees per acre at the subplot level**

DEFINITION:

The number of trees that one individual tally tree represents per acre on the subplot (point or stake position). This TPA has not been averaged across the subplots or across conditions. The calculations are based on either the BAF of variable radius plots or the area of fixed-radius plots (for example, on a 1/20th of an acre subplot, each tree represents 20 trees per acre). This TPA_SUBPLOT is used to calculate TPA at the condition class level, by dividing by the number of subplots in the condition class of the tree.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPA and TPA_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, please review the document "Alternative_Estimation_procedures.doc".

See these columns for more information:
SUBPLOT_COUNT_COND
TPH_SUBPLOT
PLOT_SIZE
TPA

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TPH**

CODED? **No**

BRIEF DESCRIPTION: **Trees per hectare**

DEFINITION:

Trees per hectare is the number of trees that one individual tally tree represents per hectare in the condition class. TPH is calculated by averaging the subplot level trees per acre (TPH_SUBPLOT) across the subplots in one condition as follows:
For one tree in one condition:
TPH= (TPH_SUBPLOT) / (SUBPLOT_COUNT_COND)

where SUBPLOT_COUNT_COND is the total number of subplots in the condition class. For FIA inventories where subplots might be split between conditions, this value includes whole and partial subplots. For R5, RMRS in CA, R6, BLMWO only one condition is assigned to the entire subplot, so this value is a count of whole subplots in one condition.

** Note that by dividing the TPH_SUBPLOT by the count of subplots in one condition, the TPH has essentially been weighted by the proportion of the plot in the condition (or, size of the condition). **

Another way of displaying the calculation above is:
TPH= [(TPH_SUBPLOT) / (Total number of subplots on the plot)] / COND_WT

The trees per hectare are used to expand per tree attributes to a per-hectare estimate that the tree represents in the inventory. For example, volume/tree * trees/hectare = volume per hectare. TPH can be used to summarize tree density by averaging the TPH across conditions in the inventory.

This TPH is used for expanding tree attributes to the condition level, for summary and analysis.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPH and TPH_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, be aware that this TPH is weighted by COND_WT (see "Alternative_Estimation_procedures.doc")

See these columns for more information:
SUBPLOT_COUNT_COND
TPH_SUBPLOT
PLOT_SIZE

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TPH_SUBPLOT**

CODED? **No**

BRIEF DESCRIPTION: **Trees per hectare at the subplot level**

DEFINITION:

The number of trees that one individual tally tree represents per hectare on the subplot (point or stake position). This TPH has not been averaged across the subplots or across conditions. The calculations are based on either the BAF of variable radius plots or the area of fixed-radius plots. This TPH_SUBPLOT is used to calculate TPH at the condition class level, by dividing by the number of subplots in the condition class of the tree.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPH and TPH_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, please review the document "Alternative_Estimation_procedures.doc".

See these columns for more information:
SUBPLOT_COUNT_COND
TPA_SUBPLOT
PLOT_SIZE
TPH

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TREE_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Tree class code to identify cull or noncull trees**

DEFINITION:

The tree class code describes the general quality of the live tree in terms of timber use and merchantability. Trees are coded as (1) sound cull, (2) rotten cull, or (3) non-cull growing stock. Sound and rotten cull trees are not considered growing stock (GS_TREE_YN=N) because there are no merchantable logs in the tree or the tree is a non-commercial (non-industrial) species.

Sound Cull:
For FIA, a sound cull includes suppressed saplings, trees that will never produce a sawlog, trees with a total percent cull > 75% but not due to rot, and noncommercial species.
For R5, a sound cull includes trees where R5TC=R which indicates that >= 25% of the tree is sound, and includes softwoods that will never produce a 10 ft sawlog, hardwoods that will never produce an 8 ft sawlog, and suppressed poles or saplings that will never reach a merchantable size.
For R6 and BLMWO, a sound cull includes trees with >= 75% cull which is not due to rot. The cull data were developed from the defect deduction field in the original R6 and BLM databases. Defect was recorded as a 10% class. The midpoint of each class was entered as the value for CULL_CUBIC. If no stem decay codes were recorded in the damage fields, the cull was assumed to be sound and the tree was assigned a tree class code of 1 (if CULL_CUBIC was >= 75%).

Rotten Cull:
For FIA, a rotten cull includes trees that are > 75% defective due to rot.
For R5, a rotten cull includes trees where R5TC=C which indicates that >= 75% of the tree is rotten.
For R6 and BLMWO, a rotten cull includes trees with >= 75% cull which is due to rot. The cull data were developed from the defect deduction field in the original R6 and BLM databases, as mentioned above. If stem decay codes were recorded in any damage field, the cull was assumed to be due to rot and the tree was assigned a tree class code of 2 (if CULL_CUBIC was >= 75%).

Most FIA publications summarize the volume of live, non cull trees (TREE_CLASS=3) in the summary tables.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_LIVE	**TREE_COUNT**	

BRIEF DESCRIPTION: **The number of seedlings counted on a fixed radius plot, or the number of saplings when a group count is entered**

DEFINITION:

When SEEDLING_YN=Y, then:
TREE_COUNT is the count of the number of seedlings observed on a fixed radius plot in the R5, R6, and BLMWO inventories. The inventory design set a maximum count equal to 10. The trees per acre and trees per hectare associated with the size of the fixed radius plot was multiplied by the seedling count where SEEDLING_YN=Y on R5, R6, and BLMWO inventories. This provided an estimate of trees per acre represented by each seedling group count.
TPA=TPA*TREE_COUNT
TPH=TPH*TREE_COUNT
TPA_SUBPLOT=TPA_SUBPLOT*TREE_COUNT
TPH_SUBPLOT=TPH_SUBPLOT*TREE_COUNT

Stocking estimates for each seedling reflects the seedling count because TPH_SUBPLOT is an input variable in the equation. Note that both stocking estimates and the trees-per-unit area may appear larger than what you might expect at first glance, but this is because these columns represent an estimate for the group of seedlings.

If the tree is not a seedling (dbh >= 1") then the count is the number of saplings that were counted as a group in the R5, R6, or BLMWO inventories.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TREE_FLAG**

CODED? **Yes**

BRIEF DESCRIPTION: **Code that indicates the tree has an unreasonable height relative to the dbh**

DEFINITION:

During the early compilation and review of the data in the IDB, certain trees were identified as having an unreasonable height or diameter. In some cases the height was very large or very small. In other cases the height to diameter ratio appeared to be unreasonable. Heights were compared to a calculated height using the FVS height estimation equations, and if they were more than twice the height or less than half the height of the FVS estimate, the tree was flagged and removed from the IDB. The reason they were removed was because the IDB staff could not be certain if the diameter was in error or the height was in error. In most cases, the measurements on these trees caused very strange (and unusable) volume and biomass estimates. Some estimates were very high, extremely low, negative, etc. because the volume equations were designed with normally formed trees and did not perform well on trees with an unusual dbh to height relationship. IDB staff felt these trees would reduce the overall quality of the data if they were included in the database.

A decision was made to establish the DBH as the correct measurement. This would imply that the height was in error on the set of trees that were removed from the database. For version 2.0, we added this set of trees back into the IDB and calculated a new height using the FVS equations. All subsequent tree calculations were based on the original diameter and newly calculated height. Volume, biomass, stocking, etc were calculated on these trees. In summary, all trees originally tallied on a plot are now included in the IDB, with the assumption that the DBH is the most likely measurement to be correct on trees that have a questionable DBH to height relationship.

We flagged these trees, allowing users the option of choosing to keep them in their analyses or to exclude them.
The column called TREE_FLAG contains the following codes:

1: Unreasonable height: height was less than ½ of the FVS calculated height for the same DBH
2: Unreasonable height: the height to DBH ratio was less than 1.5
3:Unreasonable height: height was more than twice the FVS calculated height for the same DBH
5:Unreasonable height: height appears to be too small (short) for the size of the tree
6:Height was missing from original data
9:Unreasonable height: height produced unrealistic results for volume and biomass, new equation needed

All other trees that IDB staff did not question have a TREE_FLAG value of null. Basically, when TREE_FLAG >0 we questioned the DBH to height relationship and made a decision to recalculate the height along with all other relevant tree variables.

If a new height was calculated, the HT_EST_METHOD =2 or 5. In some cases a new height was not calculated because the growth habits of the particular species often produce trees of irregular form, and the volume equation available was based on these characteristics.

The result is that Version 2 contains some new tree records in the TREE_LIVE and TREE_MORT tables. Trees were added across many plots, and in most cases this had no impact on condition level calculations. However the forest type, stand size and stand age

were recalculated and in some cases these classification variables changed based on the additional trees. The most common change was from a non-stocked forest type to a stocked type.

In summary, all trees originally tallied on a plot are now included in the IDB, with the assumption that the DBH is the most likely measurement to be correct on trees that have a questionable DBH to height relationship. Users may not agree with this assumption and may prefer to use the original height measured or estimated for the tree. These original heights were retained in a separate table called XTRA_REF_ORIGINAL_HEIGHTS_ON_QUESTIONABLE_TREES. This table has tree-level identifiers as well as species, dbh, and the original height. Users may want to evaluate the quality of the data using their own criteria, and choose to use the original height instead of the height calculated by IDB staff. This table can be linked to the TREE_LIVE table via the TREE_LIVE_ID or to the TREE_MORT table via the TREE_MORT_ID if users want to add the original height back onto the tree record.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TREE_HIST**

CODED? **Yes**

BRIEF DESCRIPTION: **Tree history**

DEFINITION:
This code identifies whether the tree is a new live tree, remeasured live tree, a tree missed at the previous inventory (FIA), or an ingrowth tree.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TREE_LIVE_ID**

CODED? **No**

BRIEF DESCRIPTION: **Live tree ID: Unique number assigned to each live tree (row) in the Live Tree table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each tree (row) in the entire Live tree table (TREE_LIVE). Tree tag numbers assigned in the field are not necessarily unique for the plot, National Forest, BLM district, etc., so a new ID number was assigned to every live tree in the table. Seedlings are given a unique ID as well, even if one row represents a group of seedlings (indicated by the TREE_COUNT column).

The ALLTREE_ID differs from this column because ALLTREE_ID includes live and dead trees.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TREE_SPECIES**

CODED? **Yes**

BRIEF DESCRIPTION: **FIA species code to identify the tree species**

DEFINITION:

A numeric code to identify the species of the tree tallied on the plot.
Codes less than 300 are softwoods and codes > 300 are hardwoods.

Refer to the metadata table called TREE_SPECIES for a variety of data about tree species, including the numeric and alpha code, species codes used by R5, R6, and BLMWO, common name, scientific name, FVS species codes, and years to breast height.

Note that forest type codes use the same set of species codes.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TREE_SPECIES_GROUP**

CODED? **Yes**

BRIEF DESCRIPTION: **A text code to organize species into groups**

DEFINITION:

This code organizes species by hardwood, softwood, or unknown.

TREE_SPECIES_GROUP = HW for trees with a numeric tree species between 300 - 998.
TREE_SPECIES_GROUP = SW for trees with a numeric tree species between 1 - 299.

TREE_SPECIES_GROUP = UNK for trees with a numeric tree species of 999: species unknown.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **TREE_TAG_NUM**

CODED? **No**

BRIEF DESCRIPTION: **Tree tag number**

DEFINITION:

The number on the metal tag of each tally tree.

It is recommended that either the TREE_ID or ALLTREE_ID be used to uniquely identify each tree. Tree tag numbers vary in their uniqueness, depending on the inventory. In some cases, tree tags are missing for unknown reasons.

For FIA, tree tag numbers are required for all trees >= 5" (12.5cm) dbh at either the previous or current inventory. For remeasured trees, the tree number is the same one assigned at the previous inventory unless the tree tag was missing and replaced at the current inventory. Tree numbers are unique on each subplot, but not across the entire plot.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_ANN_MORT_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Estimated annual mortality volume per acre, cubic-feet/acre**

DEFINITION:

Net annual mortality volume, in cubic feet/acre, is an estimate of the amount of mortality represented by the individual tree, in the overall inventory. Mortality volume is volume lost due to trees that died of natural causes. Because mortality occurs sporadically across the landscape, it is difficult to sample adequately with plots located on a systematic grid. FIA uses a method of mortality estimation that is based on the probability that an individual tree may die in one year, which is derived from a ratio of dead-to-live trees on plots throughout the inventory area. A mortality rate is developed, which is applied to each live growing stock tree in the inventory. Each tree has an estimate for both live and dead net volume.

This volume is calculated for all live growing stock trees >= 5" dbh (GS_TREE_VOL_YN=Y). Volume is estimated from a 12" high stump up to a 4-inch top.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees and coded as GS_VOL_TREE_YN=Y. For example in the IDB, 12.5cm=4.9" and is coded as GS_VOL_TREE_YN=N.
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use net volume on trees based on English units, select GS_VOL_TREE_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 12.5cm.]

Mortality net volume/acre is estimated as follows:
VOL_AC_ANN_MORT_FT3 = VOL_AC_NET_FT3 * (mortality rate).

See the technical documentation for details on Mortality rates.

See these column definitions for more details:
VOL_AC_NET_FT3
MORT_RATE

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_ANN_MORT_INTL_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Estimated annual mortality volume per acre, International 1/4" rule, board feet/acre, ft2/acre**

DEFINITION:

Net annual mortality volume, in board feet/acre (International 1/4" rule), is an estimate of the amount of mortality represented by the individual tree, in the overall inventory. Mortality volume is volume lost due to trees that died of natural causes. Because mortality occurs sporadically across the landscape, it is difficult to sample adequately with plots located on a systematic grid. FIA uses a method of mortality estimation that is based on the probability that an individual tree may die in one year, which is derived from a ratio of dead-to-live trees on plots throughout the inventory area. A mortality rate is developed, which is applied to each live growing stock tree in the inventory. Each tree has an estimate for both live and dead net volume.

This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y). Volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 8-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Mortality net volume/acre is estimated as follows:
VOL_AC_ANN_MORT_INTL_FT2 = VOL_AC_NET_INTL_FT2 * (mortality rate).

See the technical documentation for details on Mortality rates.

See these column definitions for more details:
VOL_AC_NET_INTL_FT2
MORT_RATE

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_ANN_MORT_SCR_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Estimated annual mortality volume per acre, Scribner rule, board feet/acre, ft2/acre**

DEFINITION:

Net annual mortality volume, in board feet/acre (Scribner rule), is an estimate of the amount of mortality represented by the individual tree, in the overall inventory. Mortality volume is volume lost due to trees that died of natural causes. Because mortality occurs sporadically across the landscape, it is difficult to sample adequately with plots located on a systematic grid. FIA uses a method of mortality estimation that is based on the probability that an individual tree may die in one year, which is derived from a ratio of dead-to-live trees on plots throughout the inventory area. A mortality rate is developed, which is applied to each live growing stock tree in the inventory. Each tree has an estimate for both live and dead tree (net) volume.

This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).
In western Oregon and western Washington, the volume is estimated from a 12" high stump up to the last 32-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.
In eastern Oregon, eastern Washington, and California, the volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select SAWTIMBER_YN=Y. [Or, to reproduce summary tables found in FIA publications, select DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Mortality net volume/acre is estimated as follows:
VOL_AC_ANN_MORT_SCR_FT2 = VOL_AC_NET_SCR_FT2 * (mortality rate).

See the technical documentation for details on Mortality rates.

See these column definitions for more details:
VOL_AC_NET_SCR_FT2
MORT_RATE

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_CA_GRW_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross current annual volume growth/acre, cubic-feet/acre**

DEFINITION:
Gross current annual volume growth per acre is the annual increase in net growing stock volume of a tree, in cubic feet/acre. It is estimated for the year previous to the current inventory. This volume is calculated for live, growing stock trees >= 5" dbh (GS_VOL_TREE_YN=Y).

Volume is estimated from a 12" high stump up to a 4-inch top.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees and coded as GS_VOL_TREE_YN=Y. For example in the IDB, 12.5cm=4.9" and is coded as GS_VOL_TREE_YN=N.
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use net volume on trees based on English units, select GS_VOL_TREE_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 12.5cm.]

It is calculated by subtracting the previous year's net volume/acre from the current net volume/acre. If a tree was an ingrowth tree (grew from < 5" dbh the previous year -- to >= 5" dbh at the current year), the entire net volume of the tree is considered growth. In the case of ingrowth trees: Gross current annual growth/acre=net volume/acre.
To estimate the previous year's tree volume, the annual squared diameter growth and annual height growth columns are used to estimate dbh and height for the previous year. Volume is then calculated for the previous year, using standard FIA volume equations.

Gross growth per acre is calculated from gross growth per tree * trees/acre.
Gross growth per acre is used to calculate net growth per acre.
Net growth = gross growth - (an estimate of mortality/acre for the tree)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals). The total volume that the tree represents in the inventory, is calculated as follows:

Gross current annual growth volume = VOL_AC_GRS_CA_GRW_FT3 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
AHG_FT
ASDG_IN2
ACRES_VOL

VOL_TR_GRS_CA_GRW_FT3
VOL_AC_NET_CA_GRW_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_CA_GRW_INTL_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Gross current annual volume growth/acre, International 1/4" rule, board-feet/acre, ft2/acre**

DEFINITION:

Gross current annual growth/acre is the annual increase in net sawtimber volume of a tree, in board feet/acre (International 1/4" rule). It is estimated for the year previous to the current inventory. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y). Volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 8-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

It is calculated by subtracting the previous year's net volume/acre from the current net volume/acre. If a tree was an ingrowth tree (grew from < sawtimber size in the previous year -- to >=sawtimber size at the current year), the entire net volume of the tree is considered growth. In the case of ingrowth trees: Gross current annual growth/acre=net volume/acre.
To estimate the previous year's tree volume, the annual squared diameter growth and annual height growth columns are used to estimate dbh and height for the previous year. Volume is then calculated for the previous year, using standard FIA volume equations.
Gross growth per acre is calculated from gross growth per tree * trees/acre.
Gross growth per acre is used to calculate net growth per acre.
Net growth = gross growth - (an estimate of mortality/acre for the tree)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals). The total volume that the tree represents in the inventory, is calculated as follows:

Gross current annual growth volume = VOL_AC_GRS_CA_GRW_INTL_FT2 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
AHG_FT

ASDG_IN2
ACRES_VOL
VOL_TR_GRS_CA_GRW_INTL_FT2
VOL_AC_NET_CA_GRW_INTL_FT2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_CA_GRW_SCR_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Gross current annual volume growth/acre, Scribner rule, board-feet/acre, ft2/acre**

DEFINITION:

Gross current annual growth/acre is the annual increase in net sawtimber volume of a tree, in board feet/acre (Scribner rule). It is estimated for the year previous to the current inventory. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).
In western Oregon and western Washington, the volume is estimated from a 12" high stump up to the last 32-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.
In eastern Oregon, eastern Washington, and California, the volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

It is calculated by subtracting the previous year's net volume/acre from the current net volume/acre. If a tree was an ingrowth tree (grew from < sawtimber size in the previous year -- to >=sawtimber size at the current year), the entire net volume of the tree is considered growth. In the case of ingrowth trees: Gross current annual growth/acre=net volume/acre.
To estimate the previous year's tree volume, the annual squared diameter growth and annual height growth columns are used to estimate dbh and height for the previous year. Volume is then calculated for the previous year, using standard FIA volume equations.
Gross growth per acre is calculated from gross growth per tree * trees/acre.
Gross growth per acre is used to calculate net growth per acre.
Net growth = gross growth - (an estimate of mortality/acre for the tree)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals). The total volume that the tree represents in the inventory, is calculated as follows:

Gross current annual growth volume = VOL_AC_GRS_CA_GRW_SCR_FT2 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
AHG_FT
ASDG_IN2
ACRES_VOL
VOL_TR_GRS_CA_GRW_SCR_FT2
VOL_AC_NET_CA_GRW_SCR_FT2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_CA_GRW_STEM_TTL_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross annual total stem growth volume/acre, cubic-feet/acre**

DEFINITION:

Gross current annual growth of the total stem is the annual increase in volume/acre of the entire tree (ground to tip), in cubic feet/acre. It is estimated for the year previous to the current inventory. This volume is calculated for all live growing stock trees >= 1" (2.54cm) dbh at both points in time (GS_TREE_YN=Y).

It is calculated by subtracting the previous year's gross total-stem volume/acre for the tree from the current gross total-stem volume/acre for the tree. Gross volume has not been reduced by the percent of sound or rotten cull recorded for the tree.
To estimate the previous year's tree volume, the annual squared diameter growth and annual height growth columns are used to estimate dbh and height for the previous year. Volume is then calculated for the previous year, using standard FIA volume equations for the total stem.

Gross growth per acre is calculated from gross growth per tree * trees/acre.

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals). The total volume that the tree represents in the inventory, is calculated as follows:

Gross current annual total-stem growth volume = VOL_AC_GRS_CA_GRW_STEM_TTL_FT3 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
AHG_FT
ASDG_IN2
ACRES_VOL
VOL_TR_GRS_CA_GRW_STEM_TTL_FT3
VOL_AC_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume per acre, cubic-feet/acre**

DEFINITION:
Gross volume is the volume of a tree, from a 12" high stump to a 4" diameter top, in cubic feet/acre. This volume is calculated for all live trees >= 5" dbh and has not been reduced by the percent of sound or rotten cull recorded for the tree.

This volume is calculated on all trees including culls (i.e. TREE_CLASS=1,2,3)

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees (For example in the IDB, 12.5cm=4.9").
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use gross volume on trees based on English units, select DBH_IN>= 5.
[Or, to reproduce summary tables found in FIA publications, select DBH_CM >= 12.5cm.]

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_FT3 = VOL_TR_GRS_FT3 * TPA

Gross volume is used to calculate net volume.
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals in summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Gross volume = VOL_AC_GRS_FT3 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_GRS_FT3
CULL_CUBIC
VOL_AC_NET_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_INTL_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume per acre, International 1/4" rule, board feet/acre, ft2/ac**

DEFINITION:

Gross volume is the volume of a tree, in board-feet, International 1/4" rule. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y). Volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 8-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_INTL_FT2 = VOL_TR_GRS_INTL_FT2 * TPA

Gross volume is used to calculate net volume.
Net volume = gross volume * ((100- CULL_BD_FT)/100)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals in summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Gross sawtimber volume = VOL_AC_GRS_INTL_FT2 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_GRS_INTL_FT2
CULL_BD_FT
VOL_AC_NET_INTL_FT2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_SCR_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume per acre, Scribner rule, board feet/acre, ft2/ac**

DEFINITION:

Gross volume is the volume of a tree, in board-feet/acre, Scribner rule. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).
In western Oregon and western Washington, the volume is estimated from a 12" high stump up to the last 32-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.
In eastern Oregon, eastern Washington, and California, the volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_SCR_FT2 = VOL_TR_GRS_SCR_FT2 * TPA

Gross volume is used to calculate net volume.
Net volume = gross volume * ((100- CULL_BD_FT)/100)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals in summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Gross sawtimber volume = VOL_AC_GRS_SCR_FT2 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_GRS_SCR_FT2
CULL_BD_FT
VOL_AC_NET_SCR_FT2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_STEM_SAWLOG_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross sawlog volume per acre, cubic-feet/acre**

DEFINITION:

Gross sawlog volume is the cubic volume of the sawlog portion of a tree, in cubic feet/acre. The sawlog is measured from the top of a 12" high stump to a 6-inch diameter top for softwoods and to an 8-inch diameter top for hardwoods. This volume is calculated on all live trees that are sawtimber sized as follows: softwoods >= 9" dbh or hardwoods >= 11" (SAWTIMBER_YN=Y).

This volume is calculated on all trees including culls (i.e. TREE_CLASS=1,2,3).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use gross volume on trees based on English units, select SAWTIMBER_YN=Y. Or, for FIA only, to summarize or use gross volume on trees, select DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.

This volume has not been reduced by the percent of sound or rotten cull recorded for the tree.

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_STEM_SAWLOG_FT3 = VOL_TR_GRS_STEM_SAWLOG_FT3 * TPA

Gross volume is used to calculate net volume:
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals in summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Gross sawlog volume = VOL_AC_GRS_STEM_SAWLOG_FT3* ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_GRS_STEM_SAWLOG_FT3
VOL_AC_NET_STEM_SAWLOG_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_STEM_TTL_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross total stem volume per acre, cubic feet/acre**

DEFINITION:

Gross volume of the total stem is the volume of the entire tree (ground to tip), in cubic feet/acre. This volume is calculated for all live trees >= 1" (2.54cm) dbh.

Gross volume has not been reduced by the percent of sound or rotten cull recorded for the tree. This volume is calculated on all trees including culls (i.e. TREE_CLASS=1,2,3).

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals for summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Gross total stem volume = VOL_AC_GRS_STEM_TTL_FT3 * ACRES_VOL

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_STEM_TTL_FT3= VOL_TR_GRS_STEM_TTL_FT3 * TPA

Because this volume is calculated for all live trees except seedlings, it is often used to estimate total above ground woody biomass and carbon in a forest. This volume includes all merchantable, non-merchantable, cull, nun-cull, stump, and top portions of the tree.

Note that 'net' volume is not calculated for the total stem.

See these column definitions for more details:
VOL_TR_GRS_STEM_TTL_FT3
CULL_PCT_OF_VOL

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_GRS_STEM_UPR_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume of the upper stem per acre, cubic feet/acre**

DEFINITION:

Gross volume of the upper stem is the cubic volume of the portion of the tree bole between a 6-inch top and 4-inch top for softwoods, and between an 8-inch top and a 4-inch top for hardwoods, in cubic feet/acre. This volume is calculated on all live trees that are sawtimber sized as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (SAWTIMBER_YN=Y).

This volume is calculated on all trees including culls (i.e. TREE_CLASS=1,2,3).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use gross volume on trees based on English units, select SAWTIMBER_YN=Y. Or, for FIA only, to summarize or use gross volume on trees, select DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.

Upper stem volume is calculated by subtracting the gross sawlog volume from the gross cubic-foot volume as follows:
VOL_AC_GRS_STEM_UPR_FT3 = VOL_AC_GRS_FT3 - VOL_AC_GRS_STEM_SAWLOG_FT3

This volume has not been reduced by the percent of sound or rotten cull recorded for the tree.

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_STEM_UPR_FT3 = VOL_TR_GRS_STEM_UPR_FT3 * TPA

Gross volume is used to calculate net volume:
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals in summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Gross upper stem volume = VOL_AC_GRS_STEM_UPR_FT3* ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_GRS_STEM_UPR_FT3
VOL_AC_NET_STEM_UPR_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_NET_CA_GRW_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Net current annual growth volume/acre, cubic feet/acre**

DEFINITION:

Net current annual growth is the annual increase in net volume/acre of a tree minus an estimate of annual mortality/acre for the tree, in cubic feet. It is estimated for the year previous to the current inventory. This volume is calculated for live, growing stock trees >=5" (GS_VOL_TREE_YN=Y).
Each tree in the inventory represents a certain amount of mortality volume in the overall inventory. To calculate 'Net' growth, the estimate of mortality volume/acre is subtracted from gross growth/acre for the tree.
VOL_AC_NET_CA_GRW_FT3 = VOL_AC_GRS_CA_GRW_FT3 - VOL_AC_ANN_MORT_FT3

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees and coded as GS_VOL_TREE_YN=Y. For example in the IDB, 12.5cm=4.9" and is coded as GS_VOL_TREE_YN=N.
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use net volume on trees based on English units, select GS_VOL_TREE_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 12.5cm.]

Note that net growth can be negative.

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals). The total net growth volume that the tree represents in the inventory, is calculated as follows:
Net current annual growth volume = VOL_AC_NET_CA_GRW_FT3 * ACRES_VOL

This is not estimated on cull trees (TREE_CLASS=1 or 2).

See the technical documentation for details on Volume equations.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_NET_CA_GRW_INTL_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Net current annual growth volume/acre, International 1/4" rule, board foot/acre, ft2/ac**

DEFINITION:

Net current annual growth is the annual increase in net volume/acre of a tree minus an estimate of annual mortality/acre for the tree, in board feet/acre (International 1/4" rule). It is estimated for the year previous to the current inventory. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y) at both points in time. Volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 8-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Each tree in the inventory represents a certain amount of mortality volume in the overall inventory. To calculate 'Net' growth, the estimate of mortality volume/acre is subtracted from gross growth/acre for the tree.
VOL_AC_NET_CA_GRW_INTL_FT2 = VOL_AC_GRS_CA_GRW_INTL_FT2 - VOL_AC_ANN_MORT_INTL_FT2

Note that net growth can be negative.

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals). The total net growth volume that the tree represents in the inventory, is calculated as follows:
Net current annual growth volume = VOL_AC_NET_CA_GRW_INTL_FT2 * ACRES_VOL

See the technical documentation for details on Volume equations.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_NET_CA_GRW_SCR_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Net current annual growth volume/acre, Scribner rule, board foot/acre, ft2/ac**

DEFINITION:

The net change in volume/acre that a tree represents, estimated for the year previous to the current inventory. Net volume growth per acre is the gross current annual volume growth per acre minus the annual mortality volume per acre estimated for that tree (note that net growth can be negative), in board feet/acre (Scribner rule).
This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).
In western Oregon and western Washington, the volume is estimated from a 12" high stump up to the last 32-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.
In eastern Oregon, eastern Washington, and California, the volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Each tree in the inventory represents a certain amount of mortality volume in the overall inventory. To calculate 'Net' growth, the estimate of mortality volume/acre is subtracted from gross growth/acre for the tree.
VOL_AC_NET_CA_GRW_SCR_FT2 = VOL_AC_GRS_CA_GRW_SCR_FT2 - VOL_AC_ANN_MORT_SCR_FT2

Note that net growth can be negative.

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals). The total net growth volume that the tree represents in the inventory, is calculated as follows:
Net current annual growth volume = VOL_AC_NET_CA_GRW_SCR_FT2 * ACRES_VOL

See the technical documentation for details on Volume equations.

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_NET_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Net volume per acre, cubic feet/acre**

DEFINITION:
Net volume is the volume of a tree, from a 12" high stump to a 4" diameter top, in cubic feet/acre. This volume is calculated for all live growing stock trees >= 5" dbh (GS_VOL_TREE_YN=Y).

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees and coded as GS_VOL_TREE_YN=Y. For example in the IDB, 12.5cm=4.9" and is coded as GS_VOL_TREE_YN=N.
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use net volume on trees based on English units, select GS_VOL_TREE_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 12.5cm.]

Net volume per acre is calculated by reducing the gross volume per acre by the percent of sound or rotten cull recorded for the tree:
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume per tree is used to calculate volume per acre:
VOL_AC_NET_FT3= VOL_TR_NET_FT3 * TPA

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals for summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Net volume = VOL_AC_NET_FT3 * ACRES_VOL

The majority of summary tables found in many FIA publications present this expanded volume/acre.

This column is generally the most commonly used volume for summary, analysis, and interpretation.

See these column definitions for more details:
VOL_TR_NET_FT3
VOL_AC_GRS_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_NET_INTL_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Net volume of the tree, International 1/4" rule, board feet/acre, ft2/ac**

DEFINITION:

Net volume is the volume of a tree, in board-feet/acre, International 1/4" rule. This volume is calculated for all live growing stock trees, that are sawtimber-sized as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y). Volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 8-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Volume per tree is used to calculate volume per acre:
VOL_AC_NET_INTL_FT2 = VOL_TR_NET_INTL_FT2 * TPA

Net volume is the gross volume reduced by the estimate of sound and rotten cull for the tree:
Net volume = gross volume * ((100- CULL_BD_FT)/100)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals in summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Net sawtimber volume= VOL_AC_NET_INTL_FT2 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_NET_INTL_FT2
CULL_BD_FT
VOL_AC_GRS_INTL_FT2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_NET_SCR_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Net volume per acre, Scribner rule, board feet/acre, ft2/ac**

DEFINITION:

Net volume is the volume of a tree, in board-feet/acre, Scribner rule. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).
In western Oregon and western Washington, the volume is estimated from a 12" high stump up to the last 32-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.
In eastern Oregon, eastern Washington, and California, the volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Volume per tree is used to calculate volume per acre:
VOL_AC_NET_SCR_FT2 = VOL_TR_NET_SCR_FT2 * TPA

Net volume is the gross volume reduced by the estimate of sound and rotten cull for the tree:
Net volume = gross volume * ((100- CULL_BD_FT)/100)

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals in summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Net sawtimber volume = VOL_AC_NET_SCR_FT2 * ACRES_VOL

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_NET_SCR_FT2
CULL_BD_FT
VOL_AC_GRS_SCR_FT2

TABLE NAME: COLUMN NAME: CODED? **No**

TREE_LIVE **VOL_AC_NET_STEM_SAWLOG_FT3**

BRIEF DESCRIPTION: **Net volume of the sawlog per acre, cubic feet/acre**

DEFINITION:

Net sawlog volume is the cubic volume of the sawlog portion of a tree, in cubic feet/acre. The sawlog is measured from the top of a 12" high stump to a 6-inch diameter top for softwoods and to an 8-inch diameter top for hardwoods. This volume is calculated on all live growing stock trees that are sawtimber sized as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Net volume per acre is calculated by reducing the gross volume per acre by the percent of sound or rotten cull recorded for the tree:
Net volume = gross volume * ((100- CULL_CUBIC/100)

Volume per tree is used to calculate volume per acre:
VOL_AC_NET_STEM_SAWLOG_FT3= VOL_TR_NET_STEM_SAWLOG_FT3 * TPA

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals for summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Net volume = VOL_AC_NET_STEM_SAWLOG_FT3 * ACRES_VOL

See these column definitions for more details:
VOL_TR_NET_STEM_SAWLOG_FT3
VOL_AC_GRS_STEM_SAWLOG_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_AC_NET_STEM_UPR_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Net upper stem volume per acre, cubic feet/acre**

DEFINITION:

Net volume of the upper stem is the cubic volume of the portion of the tree bole, between a 6-inch top and 4-inch top for softwoods, and between an 8-inch top and a 4-inch top for hardwoods, in cubic feet/acre. This volume is calculated on all live growing stock trees that are sawtimber sized as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

This volume/acre is calculated by subtracting the net sawlog volume/acre from the net cubic-foot volume as follows:
VOL_AC_NET_STEM_UPR_FT3 = VOL_AC_NET_FT3 - VOL_AC_NET_STEM_SAWLOG_FT3

Net volume per acre is calculated by reducing the gross volume per acre by the percent of sound or rotten cull recorded for the tree:
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume per tree is used to calculate volume per acre:
VOL_AC_NET_STEM_UPR_FT3= VOL_TR_NET_STEM_UPR_FT3 * TPA

Volume/acre is expanded by the acres per condition to produce an estimate of volume for the inventory (population totals for summary tables). The total volume that the tree represents in the inventory, is calculated as follows:
Net volume = VOL_AC_NET_STEM_UPR_FT3 * ACRES_VOL

See these column definitions for more details:
VOL_TR_NET_STEM_UPR_FT3
VOL_AC_GRS_STEM_UPR_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_CA_GRW_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross current annual growth volume/tree, cubic-feet/tree**

DEFINITION:

Gross current annual growth is the annual increase in net volume of a tree, in cubic feet. It is estimated for the year previous to the current inventory. This volume is calculated for live, growing stock trees >= 5" dbh (GS_VOL_TREE_YN=Y).

This volume is calculated on all noncull trees (i.e. TREE_CLASS=3)

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock volume trees was set at >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information on cubic volume were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees and coded as GS_VOL_TREE_YN=Y. For example in the IDB, 12.5cm=4.9" and is coded as GS_VOL_TREE_YN=N.
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use gross volume on trees based on English units, use GS_VOL_TREE_YN=Y to select trees >=5” for the summary of cubic volume.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 12.5cm.]

It is calculated by subtracting the previous year's net volume/tree from the current net volume/tree. If a tree was an ingrowth tree (grew from < 5" dbh the previous year -- to >= 5" dbh at the current year), the entire net volume of the tree is considered growth. In the case of ingrowth trees: Gross current annual growth=net volume.
To estimate the previous year's tree volume, the annual squared diameter growth and annual height growth columns are used to estimate dbh and height for the previous year. Volume is then calculated for the previous year, using standard FIA volume equations.

Gross growth per tree is used to calculate gross growth per acre.
Gross growth per acre is used to calculate net growth per acre.
Net growth = gross growth - (an estimate of mortality for the tree)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
AHG_FT
ASDG_IN2
VOL_AC_GRS_CA_GRW_FT3
VOL_AC_NET_CA_GRW_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_CA_GRW_INTL_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Gross current annual growth volume/tree, International 1/4" rule, board-feet/tree**

DEFINITION:

Gross current annual growth is the annual increase in net sawtimber volume of a tree, in board feet (International 1/4" rule). It is estimated for the year previous to the current inventory. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y). Volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 8-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

It is calculated by subtracting the previous year's net volume/tree from the current net volume/tree. If a tree was an ingrowth tree (grew from < sawtimber size in the previous year -- to >=sawtimber size at the current year), the entire net volume of the tree is considered growth. In the case of ingrowth trees: Gross current annual growth=net volume.
To estimate the previous year's tree volume, the annual squared diameter growth and annual height growth columns are used to estimate dbh and height for the previous year.
Volume is then calculated for the previous year, using standard FIA volume equations.
Gross growth per tree is used to calculate gross growth per acre.
Gross growth per acre is used to calculate net growth per acre.
Net growth = gross growth - (an estimate of mortality for the tree)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
AHG_FT
ASDG_IN2
VOL_AC_GRS_CA_GRW_INTL_FT2
VOL_AC_NET_CA_GRW_INTL_FT2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_CA_GRW_SCR_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Gross current annual growth volume/tree, Scribner rule, board-feet/tree**

DEFINITION:

Gross current annual growth is the annual increase in net sawtimber volume of a tree, in board feet (Scribner rule). It is estimated for the year previous to the current inventory. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).
In western Oregon and western Washington, the volume is estimated from a 12" high stump up to the last 32-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.
In eastern Oregon, eastern Washington, and California, the volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

It is calculated by subtracting the previous year's net volume/tree from the current net volume/tree. If a tree was an ingrowth tree (grew from < sawtimber size in the previous year -- to >=sawtimber size at the current year), the entire net volume of the tree is considered growth. In the case of ingrowth trees: Gross current annual growth=net volume.
To estimate the previous year's tree volume, the annual squared diameter growth and annual height growth columns are used to estimate dbh and height for the previous year.
Volume is then calculated for the previous year, using standard FIA volume equations.
Gross growth per tree is used to calculate gross growth per acre.
Gross growth per acre is used to calculate net growth per acre.
Net growth = gross growth - (an estimate of mortality for the tree)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
AHG_FT
ASDG_IN2
VOL_AC_GRS_CA_GRW_SCR_FT2
VOL_AC_NET_CA_GRW_SCR_FT2

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_CA_GRW_STEM_TTL_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross current annual growth of the total stem/tree, cubic-feet/tree**

DEFINITION:

Gross current annual growth of the total stem is the annual increase in volume of the entire tree (ground to tip), in cubic feet. It is estimated for the year previous to the current inventory. This volume is calculated for all live growing stock trees >= 1" (2.54cm) dbh at both points in time (GS_TREE_YN=Y).

It is calculated by subtracting the previous year's gross total-stem volume/tree from the current gross total-stem volume/tree. Gross volume has not been reduced by the percent of sound or rotten cull recorded for the tree.
To estimate the previous year's tree volume, the annual squared diameter growth and annual height growth columns are used to estimate dbh and height for the previous year. Volume is then calculated for the previous year, using standard FIA volume equations for the total stem.

Gross growth per tree is used to calculate gross growth per acre.
Note that net growth per acre is not calculated for the total stem.
Note that board foot growth is not calculated for the total stem.

See the technical documentation for details on Volume equations.

See these column definitions for more details:
AHG_FT
ASDG_IN2
VOL_AC_GRS_CA_GRW_STEM_TTL_FT3
VOL_TR_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume, cubic-feet/tree**

DEFINITION:

Gross volume is the volume of a tree, from a 12" high stump to a 4" diameter top, in cubic feet. This volume is calculated for all live trees >= 5" dbh (or 12.5 cm) and has not been reduced by the percent of sound or rotten cull recorded for the tree.

This volume is calculated on all trees including culls (i.e. TREE_CLASS=1,2,3)

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees (For example in the IDB, 12.5cm=4.9").
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use gross volume on trees based on English units, select DBH_IN>= 5.
[Or, to reproduce summary tables found in FIA publications, select DBH_CM >= 12.5cm.]

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_FT3 = VOL_TR_GRS_FT3 * TPA

Gross volume is used to calculate net volume.
Net volume = gross volume * ((100- CULL_CUBIC)/100)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_NET_FT3
VOL_AC_GRS_FT3
CULL_PCT_OF_VOL

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_INTL_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume, International 1/4" rule, board-feet/tree, ft2/tree**

DEFINITION:

Gross volume is the volume of a tree, in board-feet, International 1/4" rule. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y). Volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 8-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

This volume has not been reduced by the percent of sound or rotten cull recorded for the tree.

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_INTL_FT2 = VOL_TR_GRS_INTL_FT2 * TPA

Gross volume is used to calculate net volume.
Net volume = gross volume * ((100- CULL_BD_FT)/100)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_NET_INTL_FT2
VOL_AC_GRS_INTL_FT2
CULL_BD_FT

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_SCR_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume, Scribner rule, board-feet/tree**

DEFINITION:

Gross volume is the volume of a tree, in board-feet, Scribner rule. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).
In western Oregon and western Washington, the volume is estimated from a 12" high stump up to the last 32-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.
In eastern Oregon, eastern Washington, and California, the volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

This volume has not been reduced by the percent of sound or rotten cull recorded for the tree.

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_SCR_FT2 = VOL_TR_GRS_SCR_FT2 * TPA

Gross volume is used to calculate net volume.
Net volume = gross volume * ((100- CULL_BD_FT)/100)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_NET_SCR_FT2
CULL_PCT_OF_VOL

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_STEM_SAWLOG_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross sawlog volume, cubic-feet/tree**

DEFINITION:

Gross sawlog volume is the cubic volume of the sawlog portion of a tree, in cubic feet. The sawlog is measured from the top of a 12" high stump to a 6-inch diameter top for softwoods and to an 8-inch diameter top for hardwoods. This volume is calculated on all live trees that are sawtimber sized as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (SAWTIMBER_YN=Y).

This volume is calculated on all trees including culls (i.e. TREE_CLASS=1,2,3).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use gross volume on trees based on English units, select SAWTIMBER_YN=Y. Or, for FIA only, to summarize or use gross volume on trees, select DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.

This volume has not been reduced by the percent of sound or rotten cull recorded for the tree.

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_STEM_SAWLOG_FT3=VOL_TR_GRS_STEM_SAWLOG_FT3 * TPA

Gross volume is used to calculate net volume.
Net volume = gross volume * ((100- CULL_CUBIC)/100)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_NET_STEM_SAWLOG_FT3
VOL_AC_GRS_STEM_SAWLOG_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_STEM_TTL_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross total stem volume, cubic feet/tree**

DEFINITION:
Gross volume of the total stem is the volume of the entire tree (ground to tip), in cubic feet. This volume is calculated for all live trees >= 1" (2.54cm) dbh.

This volume has not been reduced by the percent of sound or rotten cull recorded for the tree.

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_STEM_TTL_FT3=VOL_TR_GRS_STEM_TTL_FT3 * TPA

This volume is calculated for all live trees except seedlings, and includes all merchantable, non-merchantable, cull, nun-cull, stump, and top portions of the tree.

Note that 'net' volume is not calculated for the total stem.

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_AC_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_GRS_STEM_UPR_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume of the upper stem, cubic feet/tree**

DEFINITION:

Gross volume of the upper stem is the cubic volume of the portion of the tree bole between a 6-inch top and 4-inch top for softwoods, and between an 8-inch top and a 4-inch top for hardwoods, in cubic feet. This volume is calculated on all live trees that are sawtimber sized as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (SAWTIMBER_YN=Y).

This volume is calculated on all trees including culls (i.e. TREE_CLASS=1,2,3).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use gross volume on trees based on English units, select SAWTIMBER_YN=Y. Or, for FIA only, to summarize or use gross volume on trees, select DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.

This volume is calculated by subtracting the gross sawlog volume from the gross cubic-foot volume as follows:
VOL_TR_GRS_STEM_UPR_FT3 = VOL_TR_GRS_FT3 - VOL_TR_GRS_STEM_SAWLOG_FT3

This volume has not been reduced by the percent of sound or rotten cull recorded for the tree.

Gross volume is used to calculate net volume.
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume per tree is used to calculate volume per acre.
VOL_AC_GRS_STEM_UPR_FT3=VOL_TR_GRS_STEM_UPR_FT3 * TPA

See these column definitions for more details:
VOL_TR_NET_STEM_UPR_FT3
VOL_AC_GRS_STEM_UPR_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_NET_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Net volume, cubic feet/tree**

DEFINITION:
Net volume is the volume of a tree, from a 12" high stump to a 4" diameter top, in cubic feet. This volume is calculated for all live growing stock trees >= 5" dbh (GS_VOL_TREE_YN=Y).

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees and coded as GS_VOL_TREE_YN=Y. For example in the IDB, 12.5cm=4.9" and is coded as GS_VOL_TREE_YN=N.
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use net volume on trees based on English units, select GS_VOL_TREE_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 12.5cm.]

Net volume per tree is calculated by reducing the gross volume per tree by the percent of sound or rotten cull recorded for the tree.
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume per tree is used to calculate volume per acre:
VOL_AC_NET_FT3=VOL_TR_NET_FT3 * TPA

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_GRS_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_NET_INTL_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Net volume, International 1/4" rule, board-feet/tree**

DEFINITION:

Net volume is the sawtimber volume of a tree, in board-feet, International 1/4" rule. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y). Volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 8-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Net volume per tree is calculated by reducing the gross volume per tree by the percent of sound or rotten cull recorded for the tree.
Net volume = gross volume * ((100- CULL_BD_FT)/100)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_GRS_INTL_FT2
CULL_BD_FT

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_NET_SCR_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Net volume, Scribner rule, board-feet/tree**

DEFINITION:

Net volume is the sawtimber volume of a tree, in board-feet, Scribner rule. This volume is calculated for all live growing stock trees as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).
In western Oregon and western Washington, the volume is estimated from a 12" high stump up to the last 32-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.
In eastern Oregon, eastern Washington, and California, the volume is estimated from a 12" high stump up to the last 16-foot log with a 6-inch top, for softwoods; and up to the top of the last 16-foot log with an 8-inch top for hardwoods.

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Net volume per tree is calculated by reducing the gross volume per tree by the percent of sound or rotten cull recorded for the tree.
Net volume = gross volume * ((100- CULL_BD_FT)/100)

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_TR_GRS_SCR_FT2
CULL_BD_FT

TABLE NAME: COLUMN NAME: CODED? **No**

TREE_LIVE **VOL_TR_NET_STEM_SAWLOG_FT3**

BRIEF DESCRIPTION: **Net sawlog volume of the tree, cubic feet/tree**

DEFINITION:

Net sawlog volume is the cubic volume of the sawlog portion of a tree, in cubic feet. The sawlog is measured from the top of a 12" high stump to a 6-inch diameter top for softwoods and to an 8-inch diameter top for hardwoods. This volume is calculated on all live growing stock trees that are sawtimber sized as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

Net volume per tree is calculated by reducing the gross volume per tree by the percent of sound or rotten cull recorded for the tree.
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume per tree is used to calculate volume per acre.
VOL_AC_NET_STEM_SAWLOG_FT3=VOL_TR_NET_STEM_SAWLOG_FT3 * TPA

See these column definitions for more details:
VOL_AC_NET_STEM_SAWLOG_FT3
VOL_TR_GRS_STEM_SAWLOG_FT3
CULL_CUBIC

TABLE NAME: **TREE_LIVE**

COLUMN NAME: **VOL_TR_NET_STEM_UPR_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Net upper stem volume, cubic feet/tree**

DEFINITION:

Net volume of the upper stem is the cubic volume of the portion of the tree bole, between a 6-inch top and 4-inch top for softwoods, and between an 8-inch top and a 4-inch top for hardwoods, in cubic feet. This volume is calculated on all live growing stock trees that are sawtimber sized as follows: softwoods >= 9" dbh or hardwoods >= 11" dbh (GS_TREE_YN=Y and SAWTIMBER_YN=Y).

This volume is not calculated on culls (i.e. TREE_CLASS=1,2).

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoints for sawtimber trees were set as follows: softwoods >= 22.5cm dbh or hardwoods >= 27.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered sawtimber, and coded as SAWTIMBER_YN=Y. For example in the IDB, 22.5cm=8.9" and is now coded as SAWTIMBER_YN=N.
To provide the greatest flexibility, the volume was preserved on all softwood trees DBH_CM >= 22.5cm or hardwoods DBH_CM>= 27.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (softwoods >= 9" dbh or hardwoods >= 11" dbh). To summarize or use net volume on trees based on English units, select GS_TREE_YN=Y and SAWTIMBER_YN=Y.
[Or, to reproduce summary tables found in FIA publications, select GS_TREE_YN=Y and DBH_CM >= 22.5cm for softwoods or DBH_CM>= 27.5cm for hardwoods.]

This volume is calculated by subtracting the net sawlog volume from the net cubic-foot volume as follows:
VOL_TR_NET_STEM_UPR_FT3 = VOL_TR_NET_FT3 - VOL_TR_NET_STEM_SAWLOG_FT3

Net volume per tree is calculated by reducing the gross volume per tree by the percent of sound or rotten cull recorded for the tree.
Net volume = gross volume * ((100- CULL_CUBIC)/100)

Volume per tree is used to calculate volume per acre.
VOL_AC_NET_STEM_UPR_FT3=VOL_TR_NET_STEM_UPR_FT3 * TPA

See these column definitions for more details:
VOL_AC_NET_STEM_SAWLOG_FT3
VOL_TR_GRS_STEM_SAWLOG_FT3
CULL_CUBIC

TABLE NAME: **TREE_MORT**

COLUMN NAME: **ALLTREE_ID**

CODED? **No**

BRIEF DESCRIPTION: **A unique code which identifies every tree (live or dead) in the database**

DEFINITION:

A sequential number which uniquely identifies every individual tree (live and dead) in the entire database. This number allows for easy tracking of dead trees because a tree in the mortality table may also be a tree in the snag table if it qualifies. If the same tree is in both tables, it will retain the same ALLTREE_ID number. The same is true for site trees, which may also be found in the live tree table.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **BA_FT2**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area in square feet**

DEFINITION:
The basal area of a tree is the cross-sectional area of the tree stem at the point where DBH is measured, in square feet. Calculated for all mortality trees. This estimate of basal area includes bark, if present.

Basal area per tree is calculated as follows:
BA_FT2 = .005454 * DBH_IN**2

TABLE NAME: **TREE_MORT**

COLUMN NAME: **BA_FT2_AC**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area per acre**

DEFINITION:

The amount of basal area a tree represents per acre in the condition class on the plot, in square feet per acre. Calculated for all mortality trees.

Tree basal area is the cross-sectional area of the tree stem at the point where DBH is measured, and includes bark if present.

Basal area per acre is calculated as follows:

BA_FT2_AC = BA_FT2 * TPA

TABLE NAME: **TREE_MORT**

COLUMN NAME: **BA_M2**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area in square meters**

DEFINITION:

The basal area of a tree is the cross-sectional area of the tree stem at the point where DBH is measured, in square meters. Calculated for all mortality trees. This estimate of basal area includes bark, if present.

Basal area per tree is calculated as follows:

BA_M2 = .00007854 * DBH_CM**2

TABLE NAME: **TREE_MORT**

COLUMN NAME: **BA_M2_HA**

CODED? **No**

BRIEF DESCRIPTION: **Tree basal area, in square meters per hectare**

DEFINITION:

The amount of basal area a tree represents per hectare in the condition class on the plot, in square meters per hectare. Calculated for all mortality trees.

Tree basal area is the cross-sectional area of the tree stem at the point where DBH is measured, and includes bark.

Basal area per hectare is calculated as follows:

BA_M2_HA = BA_M2 * TPH

TABLE NAME: **TREE_MORT**

COLUMN NAME: **BIOM_AC_BOLE_TTL_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the total tree bole, tons per acre**

DEFINITION:
The biomass of the total tree bole is the oven-dry weight of the entire tree stem (inside bark, ground to tip), in tons/acre. It is calculated for all mortality trees.

Wood biomass is estimated by converting cubic volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water). For softwoods and some hardwoods, volume estimates for the total tree stem include just the woody tree bole, without bark. But, for a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) a volume equation is used which includes the volume of bark and branches in the total stem estimate for volume. This is due to the crown shape and branching patterns for these hardwoods, making it difficult to identify the traditional 'total stem'. For these species, it was not possible to develop separate estimates of biomass for the total bole, bark and branches. The result is that the estimate of total stem (bole) biomass for these hardwoods actually includes the biomass of bark and branches. The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass of the bole is calculated from the cubic volume of the total stem (VOL_AC_GRS_STEM_TTL_FT3) which includes the stump and top, as follows:

BIOM_AC_BOLE_TTL_TON =
VOL_AC_GRS_STEM_TTL_FT3 * BIOM_WOOD_DENS (lbs/ft3) * .0005 tons/lb

where BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3

Biomass per acre is calculated from the biomass per tree as follows:
BIOM_AC_BOLE_TTL_TON=BIOM_TR_BOLE_TTL_TON * TPA

Biomass/acre is expanded by the acres per condition to produce an estimate of biomass for the inventory (population totals for summary tables). The total biomass that the tree represents in the inventory, is calculated as follows:
Total above ground biomass = BIOM_AC_BOLE_TTL_TON * ACRES_VOL

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

Note that no deduction has been made for decay or defect.
Note that volume equations assume the height of the dead tree is total height.
Mortality trees are trees that have died within the last 10 years for FIA inventories, and within the last 5 years for R5, R6, and BLMWO trees.

See these column definitions for more details:
BIOM_TR_BOLE_TTL_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_AC_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_MORT**

COLUMN NAME: **BIOM_TR_BOLE_TTL_TON**

CODED? **No**

BRIEF DESCRIPTION: **Biomass of the total tree bole, ground to tip**

DEFINITION:

The biomass of the total tree bole is the oven-dry weight of the entire tree stem (inside bark, ground to tip), in tons. It is calculated for all mortality trees.

Wood biomass is estimated by converting cubic volume estimates for the tree into dry weight, using a wood density factor (derived from the specific gravity of wood and weight of water). For softwoods and some hardwoods, volume estimates for the total tree stem include just the woody tree bole, without bark. But, for a group of hardwoods (species codes: 312, 330, 361, 431, 492, 542, 600, 631, 660, 730, 801, 805, 807, 811, 815, 818, 821, 839, 920, and 981) a volume equation is used which includes the volume of bark and branches in the total stem estimate for volume. This is due to the crown shape and branching patterns for these hardwoods, making it difficult to identify the traditional 'total stem'. For these species, it was not possible to develop separate estimates of biomass for the total bole, bark and branches. The result is that the estimate of total stem (bole) biomass for these hardwoods actually includes the biomass of bark and branches. The volume equations used for these hardwood species were developed by Pillsbury and Kirkley (1984).

Biomass of the bole is calculated from the cubic volume of the total stem (VOL_TR_GRS_STEM_TTL_FT3) which includes the stump and top, as follows:

BIOM_TR_BOLE_TTL_TON =
VOL_TR_GRS_STEM_TTL_FT3 * BIOM_WOOD_DENS (lbs/ft3) * .0005 tons/lb

where BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3

Biomass per tree is used to calculate the biomass per acre as follows:
BIOM_AC_BOLE_TTL_TON=BIOM_TR_BOLE_TTL_TON * TPA

Please refer to the technical documentation for more details and a complete list of volume and biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

Note that no deduction has been made for decay or defect.
Note that volume equations assume the height of the dead tree is total height.
Mortality trees are trees that have died within the last 10 years for FIA inventories, and within the last 5 years for R5, R6, and BLMWO trees.

See these column definitions for more details:
BIOM_AC_BOLE_TTL_TON
BIOM_WOOD_DENS
BIOM_WOOD_SPEC_GRAV
VOL_TR_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_MORT**

COLUMN NAME: **BIOM_WOOD_DENS**

CODED? **No**

BRIEF DESCRIPTION: **Density of wood for a species, in pounds/cubic foot.**

DEFINITION:

Wood density is a factor used to convert tree volume to biomass. It is an estimate of the oven dry weight (in pounds) of wood fiber per cubic foot of tree volume.

Wood density is calculated from the specific gravity of the wood and the weight of water as follows:
BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3
where 62.4 is the weight of water, and
BIOM_WOOD_SPEC_GRAV = the specific gravity of the wood for a given species.

Specific gravity is the ovendry weight of a piece of green wood divided by the weight of water displaced by the wood. Specific gravity has no units.

Values for specific gravity for most species were obtained from the Wood Handbook: Wood as an Engineering Material, Forest Products Laboratory, Agriculture Handbook #72, 1987, Table 4-2. Species that were not listed in this Handbook were assigned a specific gravity from a similar species. Every mortality tree in the database has a specific gravity and wood density assigned to it.

Biomass is estimated by multiplying the wood density by the cubic volume of a tree stem (total stem or merchantable stem), which results in the ovendry weight in pounds of wood fiber. This weight can then be easily converted to tons by multiplying by .0005 tons/lb or to kilograms by .4536 kg/lb.

Please refer to the technical documentation for more details and a complete list of biomass equations (and citations) used in the compilation of the IDB. Also, see the meta-data tables in the database for information on specific gravity by species.

See these column definitions for more details:
BIOM_WOOD_SPEC_GRAV

TABLE NAME: **TREE_MORT**

COLUMN NAME: **BIOM_WOOD_SPEC_GRAV**

CODED? **No**

BRIEF DESCRIPTION: **Specific gravity of wood for a given species**

DEFINITION:

Specific gravity is the ovendry weight of a piece of green wood divided by the weight of water displaced by the wood. It is used to calculate wood density which in turn is used to estimate the biomass of the tree bole. Specific gravity has no units.

Values for specific gravity for most species were obtained from the Wood Handbook: Wood as an Engineering Material, Forest Products Laboratory, Agriculture Handbook #72, 1987, Table 4-2. Species that were not listed in this Handbook were assigned a specific gravity from a similar species. Every mortality tree in the database has a specific gravity and wood density assigned to it.

Specific gravity is used to estimate wood density as follows:

BIOM_WOOD_DENS in lbs/ft3 = BIOM_WOOD_SPEC_GRAV * 62.4 lbs/ft3
where 62.4 is the weight of water.

Biomass is estimated by multiplying the wood density by the cubic volume of a tree stem (total stem or merchantable stem), which results in the ovendry weight in pounds of wood fiber. This weight can then be easily converted to tons by multiplying by .0005 tons/lb or to kilograms by .4536 kg/lb.

See these column definitions for more details:
BIOM_WOOD_SPEC_GRAV

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_MORT	**COND_ID**	

BRIEF DESCRIPTION: **Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Condition Class (COND) table. COND_ID is a key field, used to join the TREE_MORT table to the COND table.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DATA_SOURCE**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies the source of the inventory data.**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from nine different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by five individual forest inventory programs from two agencies, including the Forest Inventory and Analysis program of the Pacific Northwest Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, the Natural Resource Inventory program of the Bureau of Land Management in western Oregon and the Interior West Forest Inventory and Analysis Program of the Rocky Mountain Research Station. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Rocky Mountain Research Station's Interior West FIA unit inventoried small pieces of Washington (Kaniksu NF) and California (Toiyabe NF) and are coded RMRS.

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DBH_CLASS**

CODED? **Yes**

BRIEF DESCRIPTION: **Diameter class for the tree**

DEFINITION:

Each tree is assigned to a 2-inch diameter class based on it's dbh, ranging from 1.0 - 2.9" to 47.0 - 48.9", with the final class being > 48.9 inches. This column contains the actual text describing the diameter class (i.e. 9.0 - 10.9).

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DBH_CM**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height, in centimeters**

DEFINITION:

Diameter at breast height (dbh) is the diameter of the tree bole, in centimeters, measured at a point that is 1.37 meters above the forest floor, on the uphill side of the tree. A diameter is recorded for all trees.

Note for R5 and RMRS: The diameter recorded here is measured at the root collar (DRC) for the woodland species.

See these column definitions for more details:
DBH_EST_METHOD

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DBH_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **The method used to obtain the tree diameter**

DEFINITION:

A code that indicates whether the dbh was estimated or measured. If estimated, the code describes the method used to calculate dbh. This column refers to the dbh at the current or most recent inventory (DBH_CM or DBH_IN).

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DBH_IN**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height, in inches**

DEFINITION:
Diameter at breast height (dbh) is the diameter of the tree bole, in inches, measured at a point that is 4.5 feet above the forest floor, on the uphill side of the tree. A diameter is recorded for all trees.

Note for R5 and RMRS: The diameter recorded here is measured at the root collar (DRC) for the woodland species.

See these column definitions for more details:
DBH_EST_METHOD

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DMG_AGENT_GROUP**

CODED? **Yes**

BRIEF DESCRIPTION: **Broad group of damaging agents**

DEFINITION:

A code that identifies a broad group or category of damaging agents. The procedure to identify and code damaging agents on a tree, differs by DATA_SOURCE. For analysis purposes, a common coding system was developed to place all trees in broad groups to allow comparison of trees among all inventories in the IDB. Region 6 and BLM inventories recorded 3 separate detailed damage codes and severity codes for each tree, Region 5 recorded 1 damage code and no severity rating, and FIA differed among the inventories. RMRS recorded 3 damage codes but no severity rating. The IDB preserves these detailed codes in the columns: DMG_AGENT_REGION5, DMG_AGENT1_CODE, DMG_AGENT1_SEVERITY, DMG_AGENT2_CODE, DMG_AGENT2_SEVERITY, DMG_AGENT3_CODE, DMG_AGENT3_SEVERITY, and DWARF_MIST.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DMG_AGENT_REGION5**

CODED? **Yes**

BRIEF DESCRIPTION: **Damage codes specific to Region 5.**

DEFINITION:

A code that identifies whether a dead tree is salvable (95) or not salvable (96) for each mortality tree in the R5 inventory only. These trees have been dead for 5 years or less. The determination of whether a tree is salvable or not was made by field crews, using the Timber Marking Guides published for each National Forest. One criteria used in this evaluation is the presence of riddled bark, cambium, and/or sapwood caused by beetle activity below the bark.

In the TREE_LIVE table, a similar column contains codes that describe a specific type of damage or defect, recorded by R5 field crews. This detailed level of damage identification was not recorded for dead trees.

The salvable classification is not available for R6, BLMWO, and FIA inventories.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DMG_AGENT1_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **Agent, organism, or physical injury observed on the tree**

DEFINITION:

The damaging agent code identifies the biotic or abiotic agent that was observed on dead trees in the R6, RMRS, and BLMWO inventories only. Agents include insects, fungi, mistletoe, fire, weather, suppression, deformities, and animal damage. Characteristics of serious damage must be present and the most significant damage is recorded 1st. Agents are grouped into Class 1 and Class 2 agents, where Class 1 agents are those that seriously affect vegetation over the inventory area and Class 2 agents are less serious and more local. Class 1 agents include root diseases, bark beetles, defoliating insects, and dead/broken/missing tops. Field manuals for each inventory should be consulted for full descriptions of each agent. Class 1 agents are recorded before Class 2 agents.

Up to 3 damaging agents can be recorded on one tree.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DMG_AGENT1_SEVERITY**

CODED? **Yes**

BRIEF DESCRIPTION: **Severity of the damaging agent observed on the tree**

DEFINITION:

Identifies the severity of the particular damaging agent recorded in the column DMG_AGENT1_CODE. Severity codes have different meanings for each group of damaging agents; refer to the IDB code definitions for information on each severity code.
The severity is the degree or extent of impact that the damaging agent has had on the tree.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DMG_AGENT2_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **Agent, organism, or physical injury observed on the tree**

DEFINITION:

The damaging agent code identifies the biotic or abiotic agent that was observed on dead trees in the R6, RMRS, and BLMWO inventories only. Agents include insects, fungi, mistletoe, fire, weather, suppression, deformities, and animal damage. Characteristics of serious damage must be present and the most significant damage is recorded 1st. Agents are grouped into Class 1 and Class 2 agents, where Class 1 agents are those that seriously affect vegetation over the inventory area and Class 2 agents are less serious and more local. Class 1 agents include root diseases, bark beetles, defoliating insects, and dead/broken/missing tops. Field manuals for each inventory should be consulted for full descriptions of each agent. Class 1 agents are recorded before Class 2 agents.

Up to 3 damaging agents can be recorded on one tree.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DMG_AGENT2_SEVERITY**

CODED? **Yes**

BRIEF DESCRIPTION: **Severity of the damaging agent observed on the tree**

DEFINITION:

Identifies the severity of the particular damaging agent recorded in the column DMG_AGENT2_CODE. Severity codes have different meanings for each group of damaging agents; refer to the IDB code definitions for information on each severity code.
The severity is the degree or extent of impact that the damaging agent has had on the tree.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DMG_AGENT3_CODE**

CODED? **Yes**

BRIEF DESCRIPTION: **Agent, organism, or physical injury observed on the tree**

DEFINITION:

The damaging agent code identifies the biotic or abiotic agent that was observed on dead trees in the R6, RMRS, and BLMWO inventories only. Agents include insects, fungi, mistletoe, fire, weather, suppression, deformities, and animal damage. Characteristics of serious damage must be present and the most significant damage is recorded 1st. Agents are grouped into Class 1 and Class 2 agents, where Class 1 agents are those that seriously affect vegetation over the inventory area and Class 2 agents are less serious and more local. Class 1 agents include root diseases, bark beetles, defoliating insects, and dead/broken/missing tops. Field manuals for each inventory should be consulted for full descriptions of each agent. Class 1 agents are recorded before Class 2 agents.

Up to 3 damaging agents can be recorded on one tree.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **DMG_AGENT3_SEVERITY**

CODED? **Yes**

BRIEF DESCRIPTION: **Severity of the damaging agent observed on the tree**

DEFINITION:

Identifies the severity of the particular damaging agent recorded in the column DMG_AGENT3_CODE. Severity codes have different meanings for each group of damaging agents; refer to the IDB code definitions for information on each severity code.
The severity is the degree or extent of impact that the damaging agent has had on the tree.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **HT_ACTUAL_FT**

CODED? **No**

BRIEF DESCRIPTION: **Actual tree height, in feet**

DEFINITION:

Actual height is the distance from the base of the tree (on the uphill side) to the highest point, which is either the tip of the tree (if intact) or the point where the top is missing.

For R5, R6, and BLMWO all measured heights were actual height, not total height. For R6 and BLMWO, actual heights were measured on dead trees >= 3" dbh that HAD broken or missing tops. A damage code of 95 (missing top) was recorded on these trees. No heights were measured or field-estimated on all other normally-formed dead trees.

For R5, there was no way to determine which of the actual heights were measured on intact trees because no damage codes were recorded on dead trees.

Because total height is required to estimate tree volume and biomass, it was necessary to estimate the total height with FVS equations on ALL mortality trees in the R5, R6, and BLMWO inventories.

The method used to estimate height is coded in the column HT_EST_METHOD on each tree record.

HT_ACTUAL_FT is the original (actual) tree height that was measured on the dead tree--it was not used in any calculations of volume or biomass.

Please refer to the technical documentation for more information on height estimation and a description of the equations. Field manuals are also a good source of information.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **HT_EST_METHOD**

CODED? **Yes**

BRIEF DESCRIPTION: **Method used to estimate a total height**

DEFINITION:
The HT_EST_METHOD code indicates if the total height was field-measured, field-estimated, estimated from FVS equations, or estimated from other predictive equations.

This column pertains to either HT_FT or HT_M; it does not pertain to HT_ACTUAL_FT.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **HT_FT**

CODED? **No**

BRIEF DESCRIPTION: **Total tree height, in feet**

DEFINITION:

The total height of a mortality tree, either measured or estimated, in feet. Total height is the distance from the base of the tree (on the uphill side) to the top of the terminal leader. Depending on the data source, heights were either measured in the field, visually estimated in the field, or estimated in the office with equations.

For FIA, heights were either field-measured, field-estimated, or calculated in the office with equations. On trees with missing tops, an estimate of total height was made by field crews by evaluating heights on other trees in the stand. Heights were recorded on all trees >=1" dbh in the FIACA, FIAEW, FIAWW, and FIAEO inventories. For the FIAWO inventory, heights were recorded on all trees >= 5" dbh and on a subset of trees >=1" and < 5" dbh. For FIA, estimated heights always end in '0', while measured heights end in a non-zero number.

For R5, R6, and BLMWO, total height was estimated on ALL mortality trees using the same national FVS height equations that were used for live trees. These equations are specific to the FVS Variant and species and require dbh as an input. The reason that all heights were estimated is that these inventories recorded actual height for all dead trees. Actual height is the distance from the base of the tree (on the uphill side) to the highest point, which is either the tip of the tree (if intact) or the point where the top is missing.

For R6 and BLMWO, actual heights were measured on dead trees >= 3" dbh that HAD broken or missing tops. A damage code of 95 (missing top) was recorded on these trees. No heights were measured or field-estimated on all other normally-formed dead trees.

For R5, there was no way to determine which of the actual heights were measured on intact trees because no damage codes were recorded on dead trees.

Because total height is required to estimate tree volume, it was necessary to estimate the total height with FVS equations on all mortality trees in the R5, R6, and BLMWO inventories.

For FIAWO, on the subset of trees >=1" and < 5" dbh where heights were not recorded, an average total height was calculated from live trees on the plot in the same diameter class and species. This height was used to calculate total stem volume.

The method used to estimate height is coded in the column HT_EST_METHOD on each tree record.

Note that the original (actual) tree height has been preserved in the column HT_ACTUAL_FT.

Please refer to the technical documentation for more information on height estimation and a description of the equations. Field manuals are also a good source of information.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **HT_M**

CODED? **No**

BRIEF DESCRIPTION: **Total tree height, in meters**

DEFINITION:

The total height of a mortality tree, either measured or estimated, in meters. Total height is the distance from the base of the tree (on the uphill side) to the top of the terminal leader. Depending on the data source, heights were either measured in the field, visually estimated in the field, or estimated in the office with equations.

For FIA, heights were either field-measured, field-estimated, or calculated in the office with equations. On trees with missing tops, an estimate of total height was made by field crews by evaluating heights on other trees in the stand. Heights were recorded on all trees >=1" dbh in the FIACA, FIAEW, FIAWW, and FIAEO inventories. For the FIAWO inventory, heights were recorded on all trees >= 5" dbh and on a subset of trees >=1" and < 5" dbh. For FIA, estimated heights always end in '0', while measured heights end in a non-zero number.

For R5, R6, and BLMWO, total height was estimated on ALL mortality trees using the same national FVS height equations that were used for live trees. These equations are specific to the FVS Variant and species and require dbh as an input. The reason that all heights were estimated is that these inventories recorded actual height for all dead trees. Actual height is the distance from the base of the tree (on the uphill side) to the highest point, which is either the tip of the tree (if intact) or the point where the top is missing.

For R6 and BLMWO, actual heights were only measured on dead trees >= 3" dbh that HAD broken or missing tops. A damage code of 95 (missing top) was recorded on these trees. No heights were measured or field-estimated on all other normally-formed dead trees.

For R5, there was no way to determine which of the actual heights were measured on intact trees because no damage codes were recorded on dead trees.

Because total height is required to estimate tree volume, it was necessary to estimate the total height with FVS equations on all mortality trees in the R5, R6, and BLMWO inventories.

For FIAWO, on the subset of trees >=1" and < 5" dbh where heights were not recorded, an average total height was calculated from live trees on the plot in the same diameter class and species. This height was used to calculate total stem volume.

The method used to estimate height is coded in the column HT_EST_METHOD on each tree record.

Note that the original (actual) tree height has been preserved in the column HT_ACTUAL_FT.

Please refer to the technical documentation for more information on height estimation and a description of the equations. Field manuals are also a good source of information.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **PLOT_SIZE**

CODED? **Yes**

BRIEF DESCRIPTION: **Size of the plot**

DEFINITION:

The size of the plot where the tree was sampled. There are many plot sizes used in the inventory designs of each DATA_SOURCE. Most plots are nested within each other. Sizes ranged from small fixed radius plots to variable radius plots. Plot sizes differed based on the component of the forest being measured.

See the code definitions for a description of each plot size code.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **SUBPLOT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Unique row number assigned to each subplot record in the Subplot table. [Key Field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Subplot (SUBPLOT) table. SUBPLOT_ID is a key field, used to join this table to the SUBPLOT table.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **SUBPLOT_NUM**

CODED? **Yes**

BRIEF DESCRIPTION: **Subplot number on the plot**

DEFINITION:

A number identifying the individual subplot location (point, stake position) in the plot cluster. Plots have a maximum of 5 subplots. For FIA subplots, the original subplot number recorded in the field is stored in the SUBPLOT table and called FIELD_SUBPLOT_NUMBER.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TPA**

CODED? **No**

BRIEF DESCRIPTION: **Trees per acre**

DEFINITION:

Trees per acre is the number of trees that one individual mortality tree represents per acre in the condition class. TPA is calculated by averaging the subplot-level trees per acre (TPA_SUBPLOT) across the subplots in one condition as follows:

For one tree in one condition:
TPA= (TPA_SUBPLOT) / (SUBPLOT_COUNT_COND)

where SUBPLOT_COUNT_COND is the total number of subplots in the condition class. For FIA inventories where subplots might be split between conditions, this value includes whole and partial subplots. For R5, RMRS in CA, R6, BLMWO only one condition is assigned to the entire subplot, so this value is a count of whole subplots in one condition.

** Note that by dividing the TPA_SUBPLOT by the count of subplots in one condition, the TPA has essentially been weighted by the proportion of the plot in the condition (or, size of the condition). **

Another way of displaying the calculation above is:
TPA= [(TPA_SUBPLOT) / (Total number of subplots on the plot)] / COND_WT

The trees per acre are used to expand per-tree attributes to a per-acre estimate that the tree represents in the inventory. For example, cubic volume/tree * trees/acre = cubic volume per acre. TPA can be used to summarize tree density by averaging the TPA across conditions in the inventory.

This TPA is used for expanding tree attributes to the condition level, for summary and analysis.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPA and TPA_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, be aware that this TPA is weighted by COND_WT (see "Alternative_Estimation_procedures.doc")

See these columns for more information:
SUBPLOT_COUNT_COND
TPA_SUBPLOT
PLOT_SIZE

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TPA_SUBPLOT**

CODED? **No**

BRIEF DESCRIPTION: **Trees per acre at the subplot level**

DEFINITION:

The number of trees that one individual mortality tree represents per acre on the subplot (point or stake position). This TPA has not been averaged across the subplots or across conditions. The calculations are based on either the BAF of variable radius plots or the area of fixed-radius plots (for example, on a 1/20th of an acre subplot, each tree represents 20 trees per acre). This TPA_SUBPLOT is used to calculate TPA at the condition class level, by dividing by the number of subplots in the condition class of the tree.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPA and TPA_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, please review the document "Alternative_Estimation_procedures.doc".

See these columns for more information:
SUBPLOT_COUNT_COND
TPH_SUBPLOT
PLOT_SIZE
TPA

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TPH**

CODED? **No**

BRIEF DESCRIPTION: **Trees per hectare**

DEFINITION:

Trees per hectare is the number of trees that one individual mortality tree represents per hectare in the condition class. TPH is calculated by averaging the subplot level trees per acre (TPH_SUBPLOT) across the subplots in one condition as follows:
For one tree in one condition:
TPH= (TPH_SUBPLOT) / (SUBPLOT_COUNT_COND)

where SUBPLOT_COUNT_COND is the total number of subplots in the condition class. For FIA inventories where subplots might be split between conditions, this value includes whole and partial subplots. For R5, RMRS in CA, R6, BLMWO only one condition is assigned to the entire subplot, so this value is a count of whole subplots in one condition.

** Note that by dividing the TPH_SUBPLOT by the count of subplots in one condition, the TPH has essentially been weighted by the proportion of the plot in the condition (or, size of the condition). **

Another way of displaying the calculation above is:
TPH= [(TPH_SUBPLOT) / (Total number of subplots on the plot)] / COND_WT

The trees per hectare are used to expand per tree attributes to a per-hectare estimate that the tree represents in the inventory. For example, volume/tree * trees/hectare = volume per hectare. TPH can be used to summarize tree density by averaging the TPH across conditions in the inventory.

This TPH is used for expanding tree attributes to the condition level, for summary and analysis.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPH and TPH_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, be aware that this TPH is weighted by COND_WT (see "Alternative_Estimation_procedures.doc")

See these columns for more information:
SUBPLOT_COUNT_COND
TPH_SUBPLOT
PLOT_SIZE

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TPH_SUBPLOT**

CODED? **No**

BRIEF DESCRIPTION: **Trees per hectare at the subplot level**

DEFINITION:

he number of trees that one individual mortality tree represents per hectare on the subplot (point or stake position). This TPH has not been averaged across the subplots or across conditions. The calculations are based on either the BAF of variable radius plots or the area of fixed-radius plots. This TPH_SUBPLOT is used to calculate TPH at the condition class level, by dividing by the number of subplots in the condition class of the tree.

See the technical documentation "TPA_TPH_Calculations.doc" for a description of TPH and TPH_SUBPLOT calculations and the formulas used for each plot size in each data source. When calculating standard errors with this database, please review the document "Alternative_Estimation_procedures.doc".

See these columns for more information:
SUBPLOT_COUNT_COND
TPA_SUBPLOT
PLOT_SIZE
TPH

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TREE_COUNT**

CODED? **No**

BRIEF DESCRIPTION: **The number of dead saplings counted on a fixed radius plot.**

DEFINITION:

The count is the number of saplings (>= 1" dbh) that were counted as a group in the R5, R6, or BLMWO inventories.
The count is used to increase the number of trees-per-unit area represented by each group of saplings.

TPA=TPA*TREE_COUNT
TPH=TPH*TREE_COUNT
TPA_SUBPLOT=TPA_SUBPLOT*TREE_COUNT
TPH_SUBPLOT=TPH_SUBPLOT*TREE_COUNT

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TREE_FLAG**

CODED? **Yes**

BRIEF DESCRIPTION: **Code that indicates the tree has an unreasonable height relative to the dbh**

DEFINITION:

During the early compilation and review of the data in the IDB, certain trees were identified as having an unreasonable height or diameter. In some cases the height was very large or very small. In other cases the height to diameter ratio appeared to be unreasonable. Heights were compared to a calculated height using the FVS height estimation equations, and if they were more than twice the height or less than half the height of the FVS estimate, the tree was flagged and removed from the IDB. The reason they were removed was because the IDB staff could not be certain if the diameter was in error or the height was in error. In most cases, the measurements on these trees caused very strange (and unusable) volume and biomass estimates. Some estimates were very high, extremely low, negative, etc. because the volume equations were designed with normally formed trees and did not perform well on trees with an unusual dbh to height relationship. IDB staff felt these trees would reduce the overall quality of the data if they were included in the database.

A decision was made to establish the DBH as the correct measurement. This would imply that the height was in error on the set of trees that were removed from the database. For version 2.0, we added this set of trees back into the IDB and calculated a new height using the FVS equations. All subsequent tree calculations were based on the original diameter and newly calculated height. Volume, biomass, stocking, etc were calculated on these trees. In summary, all trees originally tallied on a plot are now included in the IDB, with the assumption that the DBH is the most likely measurement to be correct on trees that have a questionable DBH to height relationship.

We flagged these trees, allowing users the option of choosing to keep them in their analyses or to exclude them.
The column called TREE_FLAG contains the following codes:

1: Unreasonable height: height was less than ½ of the FVS calculated height for the same DBH
2: Unreasonable height: the height to DBH ratio was less than 1.5
3:Unreasonable height: height was more than twice the FVS calculated height for the same DBH
5:Unreasonable height: height appears to be too small (short) for the size of the tree
6:Height was missing from original data
9:Unreasonable height: height produced unrealistic results for volume and biomass, new equation needed

All other trees that IDB staff did not question have a TREE_FLAG value of null. Basically, when TREE_FLAG >0 we questioned the DBH to height relationship and made a decision to recalculate the height along with all other relevant tree variables.

If a new height was calculated, the HT_EST_METHOD =2 or 5. In some cases a new height was not calculated because the growth habits of the particular species often produce trees of irregular form, and the volume equation available was based on these characteristics.

The result is that Version 2 contains some new tree records in the TREE_LIVE and TREE_MORT tables. Trees were added across many plots, and in most cases this had no impact on condition level calculations. However the forest type, stand size and stand age

were recalculated and in some cases these classification variables changed based on the additional trees. The most common change was from a non-stocked forest type to a stocked type.

In summary, all trees originally tallied on a plot are now included in the IDB, with the assumption that the DBH is the most likely measurement to be correct on trees that have a questionable DBH to height relationship. Users may not agree with this assumption and may prefer to use the original height measured or estimated for the tree. These original heights were retained in a separate table called XTRA_REF_ORIGINAL_HEIGHTS_ON_QUESTIONABLE_TREES. This table has tree-level identifiers as well as species, dbh, and the original height. Users may want to evaluate the quality of the data using their own criteria, and choose to use the original height instead of the height calculated by IDB staff. This table can be linked to the TREE_LIVE table via the TREE_LIVE_ID or to the TREE_MORT table via the TREE_MORT_ID if users want to add the original height back onto the tree record.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TREE_HIST**

CODED? **Yes**

BRIEF DESCRIPTION: **Tree history**

DEFINITION:

The tree history identifies the tree as mortality. A mortality tree has died from natural causes such as insect attack, disease, fire, or weather. The tree was not killed as a result of harvest activity. This code is always 5.

For the FIA inventories, mortality trees are those that died between successive inventories--a period of about 10 years.
For R5, R6, and BLMWO inventories where there are no remeasured plots, field crews estimated whether the tree died within the last 5 years.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TREE_MORT_ID**

CODED? **No**

BRIEF DESCRIPTION: **Mortality tree ID: Unique number assigned to each dead tree (row) in the Mortality Tree table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each tree (row) in the entire Mortality tree table (TREE_MORT). Tree tag numbers assigned in the field are not necessarily unique for the plot, National Forest, or BLM district, etc., and in some cases no tree number was assigned to a dead tree--so a new ID number was assigned to every tree in the table.

The ALLTREE_ID differs from this column because ALLTREE_ID is unique for all live and dead trees.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TREE_SPECIES**

CODED? **Yes**

BRIEF DESCRIPTION: **FIA species code to identify the tree species**

DEFINITION:

A numeric code to identify the species of the tree tallied on the plot.
Codes less than 300 are softwoods and codes > 300 are hardwoods.

Refer to the metadata table called TREE_SPECIES for a variety of data about tree species, including the numeric and alpha code, species codes used by R5, R6, and BLMWO, common name, scientific name, FVS species codes, and years to breast height.

Note that forest type codes use the same set of species codes.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TREE_SPECIES_GROUP**

CODED? **Yes**

BRIEF DESCRIPTION: **A text code to organize species into groups**

DEFINITION:

This code organizes species by hardwood, softwood, or unknown.

TREE_SPECIES_GROUP = HW for trees with a numeric tree species between 300 - 998.
TREE_SPECIES_GROUP = SW for trees with a numeric tree species between 1 - 299.

TREE_SPECIES_GROUP = UNK for trees with a numeric tree species of 999: species unknown.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **TREE_TAG_NUM**

CODED? **No**

BRIEF DESCRIPTION: **Tree tag number**

DEFINITION:

The number on the metal tag on the base of each tally tree.

It is recommended that either the TREE_ID or ALLTREE_ID be used to uniquely identify each tree. Tree tag numbers vary in their uniqueness, depending on the inventory. In some cases, tree tags are missing or intentionally not assigned.

For FIA, tree tag numbers are required for all trees >= 5" (12.5cm) dbh at either the previous or current inventory. For remeasured trees, the tree number is the same one assigned at the previous inventory unless the tree tag was missing and replaced at the current inventory. Tree numbers are unique on each subplot, but not across the entire plot.

TABLE NAME: **TREE_MORT**

COLUMN NAME: **VOL_AC_GRS_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume of the tree/acre, cubic-feet/acre**

DEFINITION:

Gross volume is the volume of a tree, from a 12" high stump to a 4" diameter top, in cubic feet/acre. This volume is calculated for all mortality trees >= 5" dbh. The volume has not been reduced or adjusted by the percent defect recorded for the tree (if available). Total tree height (estimated or measured) was used to estimate volume.

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees (For example in the IDB, 12.5cm=4.9").
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use gross volume on trees based on English units, select DBH_IN>= 5.
[Or, to reproduce summary tables found in FIA publications, select DBH_CM >= 12.5cm.]

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_FT3 = VOL_TR_GRS_FT3 * TPA

Volume/acre is expanded by the acres per condition to produce an estimate of mortality volume detected in the inventory. The total volume that the tree represents in the inventory, is calculated as follows:
Gross volume = VOL_AC_GRS_FT3 * ACRES_VOL_MORT

Note, that there is an estimate of annual mortality volume represented by each live tree in the TREE_LIVE table. This estimate is a probability based estimate, derived from the presence or absence of dead trees recorded in the inventory, for a given species group and location. An annualized mortality rate is calculated and multiplied by the net volume to produce the estimate of mortality volume for the tree. It is this volume that is summarized in most FIA and RPA publications.

See the technical documentation for details on Volume equations and mortality rates.

See these column definitions for more details:
VOL_TR_GRS_FT3
MORT_RATE
VOL_AC_ANN_MORT_FT3

TABLE NAME: **TREE_MORT**

COLUMN NAME: **VOL_AC_GRS_STEM_TTL_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross total stem volume, cubic feet/acre**

DEFINITION:

Gross volume of the total stem is the volume of the entire tree (ground to tip), in cubic feet/acre. This volume is calculated for all trees >= 1" (2.54cm) dbh, where total heights are available.

For R5, R6, BLMWO FIACA, FIAEW, FIAEO volume is available on trees >=1"dbh. For FIAWO volume is available on most trees >= 1" dbh.

Gross volume has not been reduced by the percent of sound or rotten cull recorded for the tree.

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_STEM_TTL_FT3= VOL_TR_GRS_STEM_TTL_FT3 * TPA

Volume/acre can be expanded by the acres per condition to produce an estimate of volume for the inventory. The total mortality volume that the tree represents in the inventory, is calculated as follows:
Gross total stem volume = VOL_AC_GRS_STEM_TTL_FT3 * ACRES_VOL_MORT

This volume includes all merchantable, non-merchantable, cull, nun-cull, stump, and top portions of the tree.

See these column definitions for more details:
VOL_TR_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_MORT**

COLUMN NAME: **VOL_TR_GRS_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross volume of the tree, cubic-feet,/tree**

DEFINITION:

Gross volume is the volume of a tree, from a 12" high stump to a 4" diameter top, in cubic feet. This volume is calculated for all mortality trees >= 5" dbh (or 12.5 cm) and has not been reduced or adjusted by the percent of sound or rotten cull (defect) recorded for the tree (if available). Total tree height (estimated or measured) was used to estimate volume.

Note: In FIA inventories, trees were originally measured in metric in the field. The historical conversion factor used to convert centimeters to inches was 2.5cm per inch. Therefore the diameter breakpoint for growing stock trees was set to >= 12.5cm dbh. All FIA resource bulletins that provide basic summary information were based on this set of trees. Because the IDB uses a conversion factor of 2.54cm/inch, a slightly smaller set of trees are now considered growing stock volume trees (For example in the IDB, 12.5cm=4.9").
To provide the greatest flexibility, the volume was preserved on all trees DBH_CM >= 12.5cm in FIA inventories. In general, current standards for summary and analysis are now based on English units (>= 5" dbh). To summarize or use gross volume on trees based on English units, select DBH_IN>= 5.
[Or, to reproduce summary tables found in FIA publications (if any), select DBH_CM >= 12.5cm.]

Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_FT3 = VOL_TR_GRS_FT3 * TPA

See the technical documentation for details on Volume equations.

See these column definitions for more details:
VOL_AC_GRS_FT3

TABLE NAME: **TREE_MORT**

COLUMN NAME: **VOL_TR_GRS_STEM_TTL_FT3**

CODED? **No**

BRIEF DESCRIPTION: **Gross total stem volume, cubic feet/tree**

DEFINITION:

Gross volume of the total stem is the volume of the entire tree (ground to tip), in cubic feet. This volume is calculated for all trees >= 1" (2.54cm) dbh, where total heights are available.

For R5, R6, BLMWO FIACA, FIAEW, FIAEO volume is available on trees >=1"dbh. For FIAWO volume is available on most trees >= 1" dbh.

Gross volume has not been reduced by the percent of defect recorded for the tree (if available).
Volume per tree is used to calculate volume per acre:
VOL_AC_GRS_STEM_TTL_FT3= VOL_TR_GRS_STEM_TTL_FT3 * TPA

This volume includes all merchantable, non-merchantable, cull, nun-cull, stump, and top portions of the tree.

See these column definitions for more details:
VOL_AC_GRS_STEM_TTL_FT3

TABLE NAME: **TREE_SITE**

COLUMN NAME: **AGE_BH**

CODED? **No**

BRIEF DESCRIPTION: **Breast height age of the tree**

DEFINITION:

Breast height age of the tree is the measured (bored) age at breast height, in years. Breast height is the location on a tree where it is bored, about 4.5 ft (1.37m) from the ground.

An estimate of the number of years a species takes to reach breast height is available in the metadata table TREE_SPECIES.

TABLE NAME: **TREE_SITE**

COLUMN NAME: **ALLTREE_ID**

CODED? **No**

BRIEF DESCRIPTION: **A unique code which identifies every tree (live or dead) in the database**

DEFINITION:

A sequential number which uniquely identifies each individual tree (live and dead) in the entire database. This number allows users to combine live and dead trees if desired, and still retain a unique ID for the new table. This number also allows for easy tracking of dead trees because a tree in the mortality table may also be in the snag table if it qualifies. It also tracks live trees which are site trees in the SITE table.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_SITE	**COND_ID**	

BRIEF DESCRIPTION: **Condition ID: Unique number assigned to each condition class row in the Condition Class table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Condition Class (COND) table. COND_ID is a key field, used to join the TREE_SITE table to the COND table.

TABLE NAME: **TREE_SITE**

COLUMN NAME: **DATA_SOURCE**

CODED? **Yes**

BRIEF DESCRIPTION: **Identifies the source of the inventory data.**

DEFINITION:

A code that identifies the source (Agency or Forest Service office) of the inventory data and the individual periodic FIA inventory. The IDB contains data from nine different forest inventories conducted by the Forest Service and the Bureau of Land Management in California, Oregon, and Washington. These inventories were organized and executed by five individual forest inventory programs from two agencies, including the Forest Inventory and Analysis program of the Pacific Northwest Research Station, the Continuous Vegetation Survey program of the Pacific Northwest Region 6, the Forest Inventory program of the Pacific Southwest Region 5, the Natural Resource Inventory program of the Bureau of Land Management in western Oregon and the Interior West Forest Inventory and Analysis Program of the Rocky Mountain Research Station. The inventories were designed and executed as individual projects, and are coded as such in this database. The National Forest inventories (Region 5 and 6) were designed as one inventory for the entire region, and are coded as R5 and R6. The BLM inventory was designed for western Oregon, and is coded as BLMWO. The FIA program designed 5 similar but individual inventories for the east and west sides of Oregon and Washington and for California, and are coded as FIAEO, FIAWO, FIAEW, FIAWW, and FIACA. The Rocky Mountain Research Station's Interior West FIA unit inventoried small pieces of Washington (Kaniksu NF) and California (Toiyabe NF) and are coded RMRS.

This column is useful to sort or select data from a particular inventory of interest.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_SITE	**DBH_CM**	

BRIEF DESCRIPTION: **Diameter at breast height, cm**

DEFINITION:

Diameter at breast height (dbh) is the diameter of the tree bole, in centimeters, measured at a point that is 1.37 meters above the forest floor, on the uphill side of the tree. A diameter is not recorded for all trees, because the site index equations do not require dbh.

TABLE NAME: **TREE_SITE**

COLUMN NAME: **DBH_IN**

CODED? **No**

BRIEF DESCRIPTION: **Diameter at breast height, inches**

DEFINITION:

Diameter at breast height (dbh) is the diameter of the tree bole, in inches, measured at a point that is 4.5 feet above the forest floor, on the uphill side of the tree. A diameter is not recorded for all trees, because the site index equations do not require dbh.

TABLE NAME: **TREE_SITE**

COLUMN NAME: **HT_FT**

CODED? **No**

BRIEF DESCRIPTION: **Tree height in feet**

DEFINITION:

The total height of a tree in feet. Heights on site trees are always measured in the field. Total height is the distance from the base of the tree (on the uphill side) to the top of the terminal leader. Every site tree has a height, which is used to calculate the site index. See the technical documentation on Site Index for a list of equations.

Measured heights were taken on trees with normally-formed tree boles, with no deformities or missing tops.

TABLE NAME: **TREE_SITE**

COLUMN NAME: **HT_M**

CODED? **No**

BRIEF DESCRIPTION: **Tree height, in meters**

DEFINITION:

The total height of a tree in meters. Heights on site trees are always measured in the field. Total height is the distance from the base of the tree (on the uphill side) to the top of the terminal leader. Every site tree has a height, which is used to calculate the site index. See the technical documentation on Site Index for a list of equations.

Measured heights were taken on trees with normally-formed tree boles, with no deformities or missing tops.

TABLE NAME: **TREE_SITE**

COLUMN NAME: **PLOT**

CODED? **No**

BRIEF DESCRIPTION: **Original plot number**

DEFINITION:

The original numeric code that identified the individual field plot location for a given inventory (data source). This is the number used by field crews and office staff to identify all materials and information for that plot while compiling and executing the inventory. Some plot numbers are unique within a Forest and others are unique in the entire regional inventory. In FIA inventories most plot numbers are unique within a state and county.

Because of this variability in uniqueness from the many data sources in this database, it is recommended that the column PLOT_ID be used to uniquely identify every plot location in this database. ID is unique across all data sources and all inventories.

The column PLOT is useful to link to other databases that only contain the original plot number as an identifier.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_SITE	**SITE_INDEX**	

BRIEF DESCRIPTION: **Site Index for each site tree**

DEFINITION:

A calculated site index for the site tree, based on FIA procedures and published site index equations. SI is a measure of forest productivity based on the average height of dominant and codominant trees at a specified age. A site index is generated for each site tree located in the TREE_SITE table. In FIA inventories, one species is chosen as the site species and the equation associated with that species is used to calculate site index. For R6 and BLMWO inventories, multiple species could have been chosen as site trees. A prioritized list of preferred species guided field crews. They were instructed to select trees on the plot, choosing a species highest on the list first. If multiple site species existed on R6 and BLMWO plots, the species that held the majority was chosen as the condition-level site species. The site index for the condition was the average of all site indexes calculated on trees of the same species.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
TREE_SITE	**SITE_INDEX_EQN**	

BRIEF DESCRIPTION: **Number of the Site Index equation used on this tree.**

DEFINITION:
A number that identifies the Site Index equation used for this calculation.

Please see the technical documentation for a full description and reference for each equation.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_SITE	**SUBPLOT_ID**	

BRIEF DESCRIPTION: **Unique row number assigned to each subplot record in the Subplot table. [Key Field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire Subplot (SUBPLOT) table. SUBPLOT_ID is a key field, used to join this table to the SUBPLOT table.

TABLE NAME:	COLUMN NAME:	CODED? **Yes**
TREE_SITE	**SUBPLOT_NUM**	

BRIEF DESCRIPTION: **Subplot number on the plot**

DEFINITION:
A number identifying the individual subplot location (point, stake position) in the plot cluster. Plots have a maximum of 5 subplots. For FIA subplots, the original subplot number recorded in the field is stored in the SUBPLOT table and called FIELD_SUBPLOT_NUMBER.

TABLE NAME:	COLUMN NAME:	CODED? **No**
TREE_SITE	**TREE_SITE_ID**	

BRIEF DESCRIPTION: **Site Tree ID: Unique number assigned to each row in the site tree table [Key field]**

DEFINITION:

A sequential number which uniquely identifies each record (row) in the entire TREE_SITE table. If a site tree was also tallied as a live tree then the ALLTREE_ID will be the same.

TABLE NAME: **TREE_SITE**

COLUMN NAME: **TREE_SPECIES**

CODED? **Yes**

BRIEF DESCRIPTION: **FIA species code to identify the tree species**

DEFINITION:

A numeric code to identify the species of the tree tallied on the plot.
Codes less than 300 are softwoods and codes > 300 are hardwoods.

Refer to the metadata table called TREE_SPECIES for a variety of data about tree species, including the numeric and alpha code, species codes used by R5, R6, and BLMWO, common name, scientific name, FVS species codes, and years to breast height.

Not all species qualify as a site tree. See site tree documentation for more information.

Note that forest type codes use the same set of species codes.

TABLE NAME: **TREE_SITE**

COLUMN NAME: **TREE_TAG_NUM**

CODED? **No**

BRIEF DESCRIPTION: **Tree tag number**

DEFINITION:

The number on the metal tag of each tally tree.

It is recommended that either the TREE_ID or ALLTREE_ID be used to uniquely identify each tree. Tree tag numbers vary in their uniqueness, depending on the inventory. In some cases, tree tags are missing for unknown reasons.

For FIA, tree tag numbers are required for all trees >= 5" (12.5cm) dbh at either the previous or current inventory. For remeasured trees, the tree number is the same one assigned at the previous inventory unless the tree tag was missing and replaced at the current inventory. Tree numbers are unique on each subplot, but not across the entire plot.