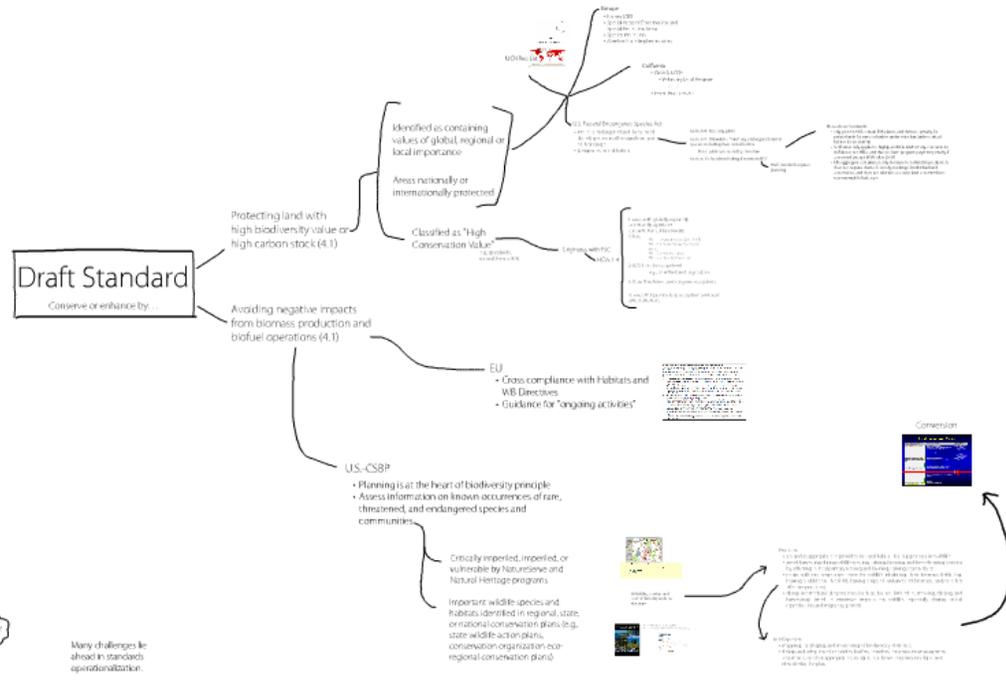
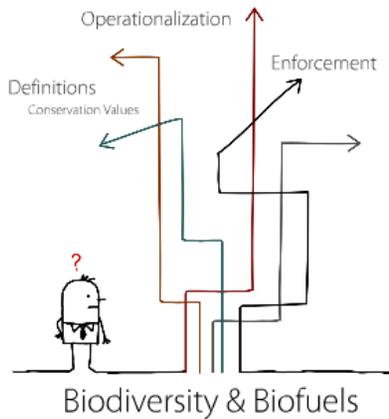


Operationalizing Biodiversity Standards: Definitional and Enforcement Issues



Jody Endres, J.D., M.A.
 Assistant Professor of Environmental and Energy Law
 The University of Illinois Energy Biosciences Institute
 January 20, 2012



Many challenges lie ahead in standards operationalization.

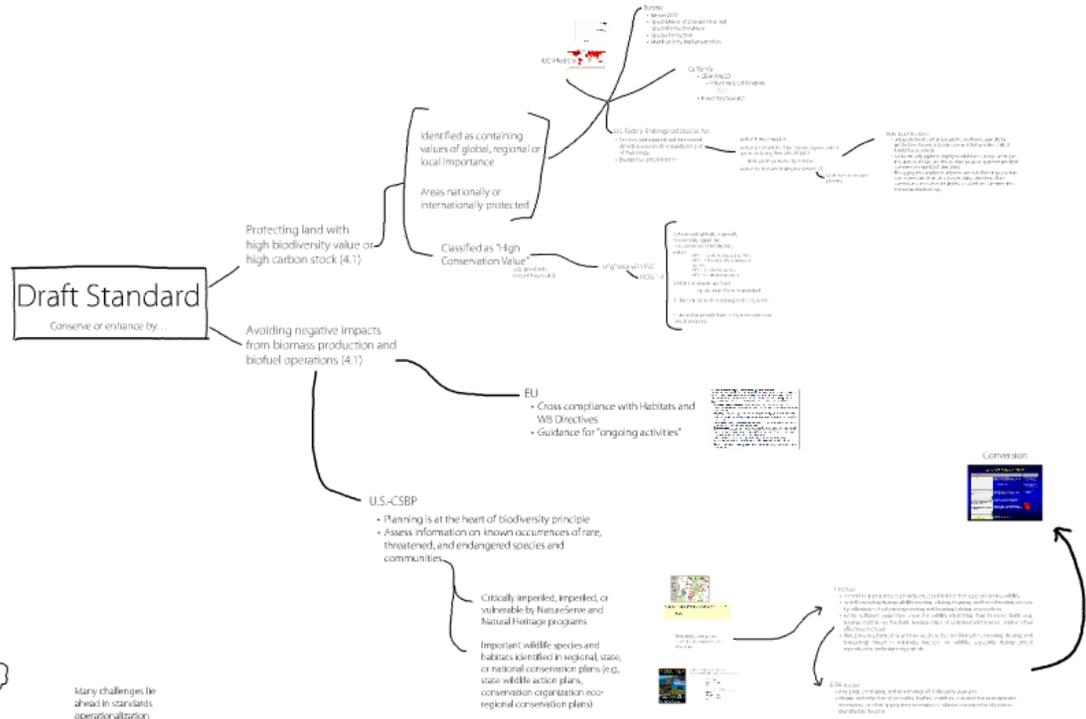
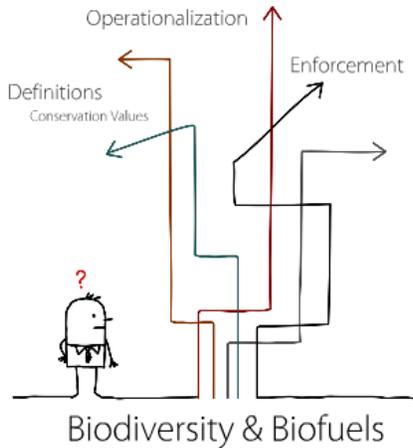
Biodiversity & Biofuels

Thank you!
 jendres@pfri.uiuc.edu
 217-243-9579

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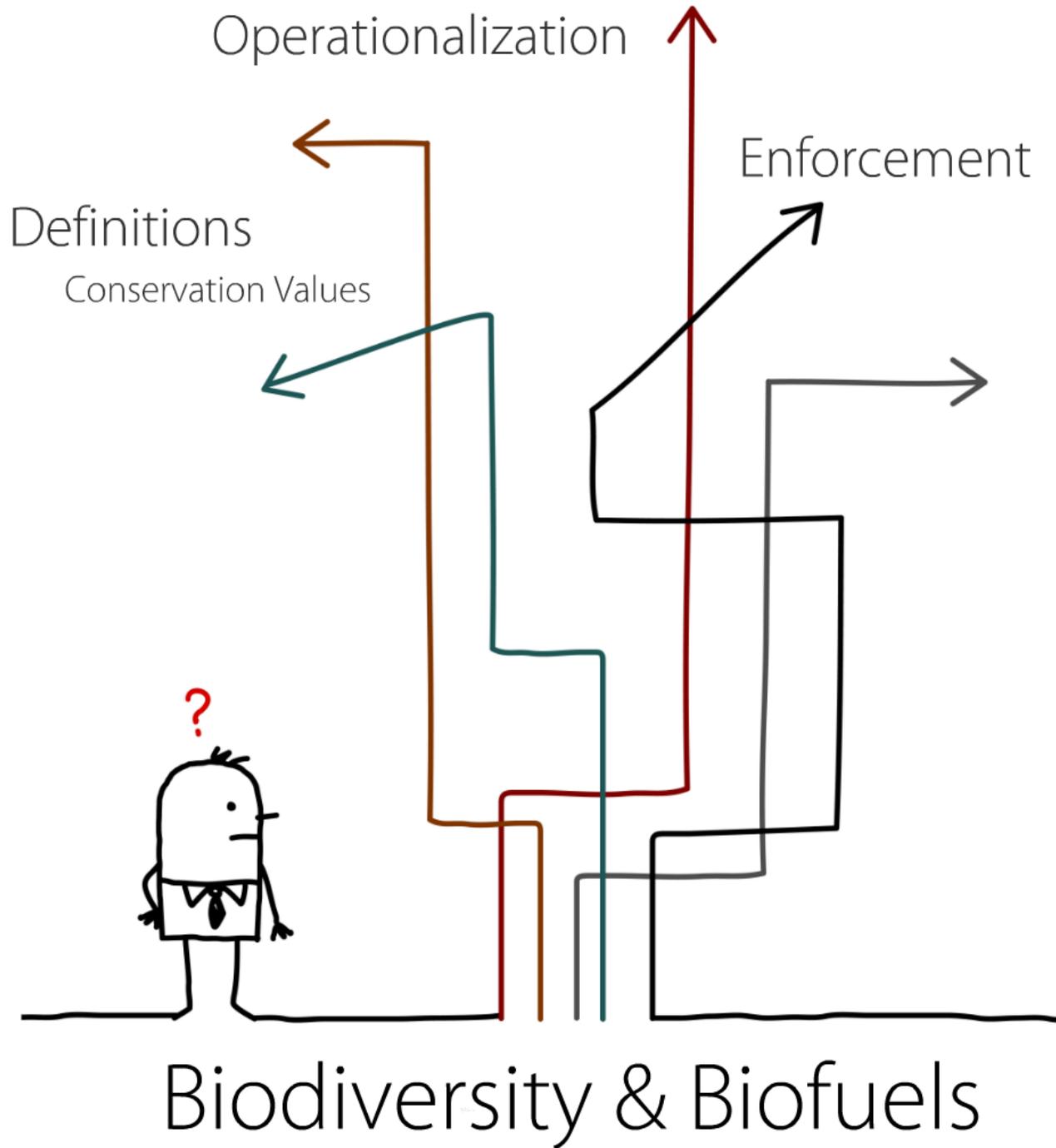
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Operationalizing Biodiversity Standards: Definitional and Enforcement Issues



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January 20, 2012





CBD definition of "Biodiversity":

- The variability among living organisms including terrestrial, marine and other aquatic ecosystems, and
- The ecological complexes of which they are part; this includes biodiversity within species, between species, and of ecosystems.

Draft Standard
Conserve or enhance by...

Protecting land with high biodiversity value or high carbon stock (4.1)

Avoiding negative impacts from biomass production and biofuel operations (4.1)

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Protecting land with
high biodiversity value or
high carbon stock (4.1)

Identified as containing
values of global, regional or
local importance

Areas nationally or
internationally protected

Classified as "High
Conservation Value"

e.g., grasslands,
natural forests (4.3)

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Originates with FSC

HCVs 1-4

- (listed) species in all or significant part of their range
- Designates critical habitat

Section 9: Unlawful to "take" species, including their critical

Note: plants protected by

Section 10: Incidental taking

1: Areas with globally, regionally or nationally significant concentrations of biodiversity values

- HCV 1.1: protected areas (e.g., CBD)
- HCV 1.2: threatened & endangered species
- HCV 1.3: endemic species
- HCV 1.4: critical temporal use

2: HCV 1 at a landscape level
e.g., an entire forest or grassland

3: Rare, threatened or endangered ecosystems

4: Areas that provide basic ecosystem services in critical situations

EU

• Cross compliance with Habitats and

Good practice for managing woodland with great crested newts
 This good practice guidance for routine woodland operations should maintain or improve habitat for great crested newts and minimises the risk of harming individuals or damaging their breeding sites or resting places. If you follow this good practice, and carry out the operations as described here, we would not expect you to require a protected species licence.

- **Thinning/felling/tree surgery** – phase any work near a pond used by great crested newts over several years, so that within 100m of a pond only 25% of the area is affected in any one year.
- **Stacking** – within 100m of a pond, try to avoid stacking timber unless such stacks can be left solely as habitat. If you do have to harvest and stack timber in close proximity

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Originates

- U.S. F
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- Des

Europe

- Natura 2000
- Special Areas of Conservation and Special Protection Areas
- Species Protection
- Member State Implementation

California

- CESA & NCCP
- Voluntary Local Program
- Forest Practices Act

U.S. Federal Endangered Species Act

- Protects endangered and threatened (listed) species in all or significant part of their range
- Designates critical habitat

Section 4: Recovery plans

Section 9: Unlawful to "take" any endangered animal species, including their critical habitat

Note: plants protected by state law

Section 10: Incidental taking if maintain HCP

Draft standard requires planning

IUCN Red List



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Note about Grasslands:

- only protected if contain ESA plants, and then no penalty for private lands for removal unless under state law (unless critical habitat for an animal)
- Sodbuster only applies to highly erodible lands; many conversions in Dakotas not HELs, and thus no farm program payment penalty if converted (except BCAP after 2008)
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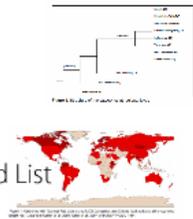
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In August 2000, a programmatic NCCP was approved for the massive CALFED (CNRA Delta Stewardship Council) Bay-Delta Program covering water infrastructure and habitat restoration projects throughout the Sacramento-San Joaquin Delta, San Francisco Bay, and Central Valley.

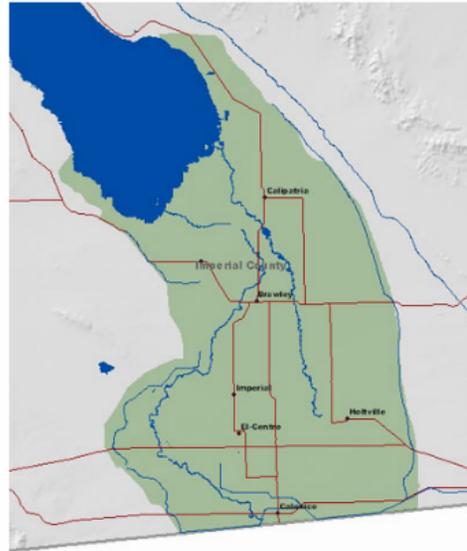
- Forest Practices Act

• Voluntary

NCCP Plan Summary – Imperial Irrigation District



[American White Pelican](#)
[@ Sherry Ballard, California Academy of Sciences](#)



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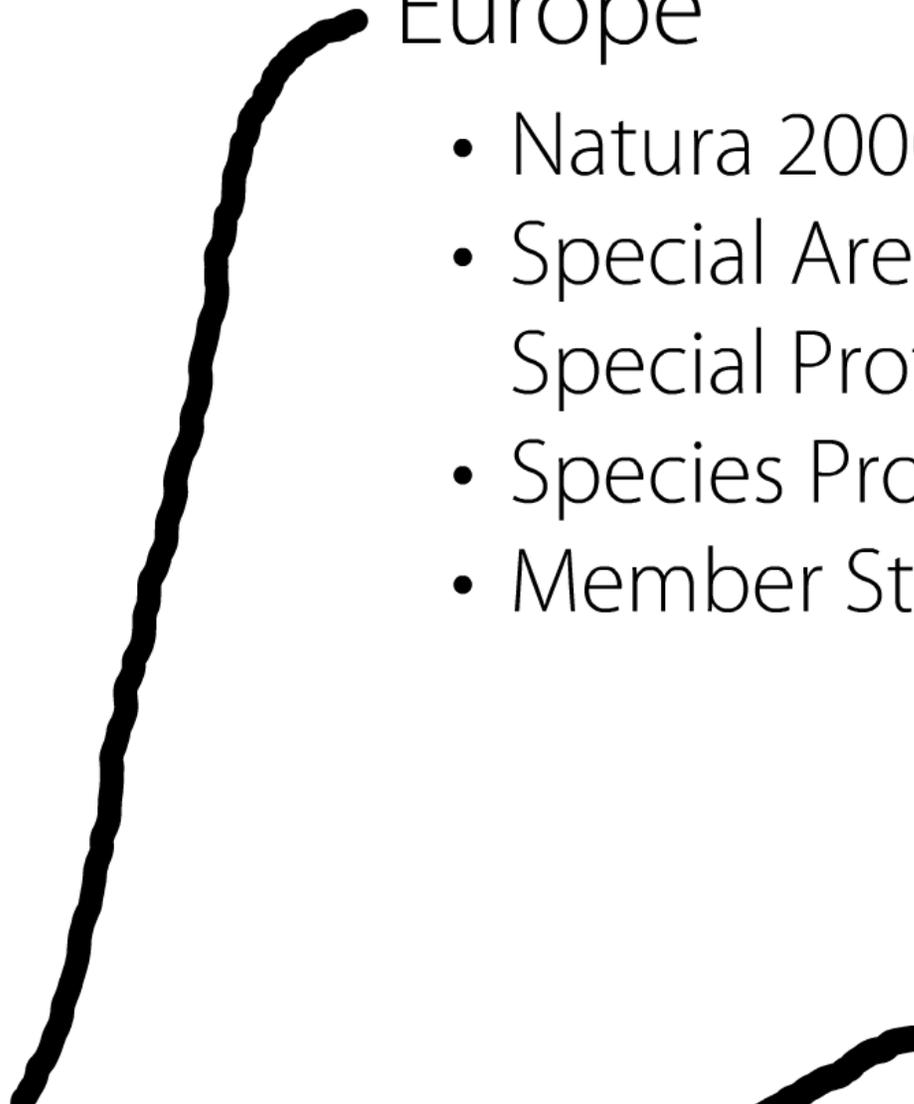
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Draft standard requires planning

Note about Grasslands

- only protected on private lands for habitat for an animal
- Sodbuster only in Dakotas not converted (except)
- RFS aggregated does not require conversions, and non-renewable



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- Special Areas of Conservation and Special Protection Areas
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California

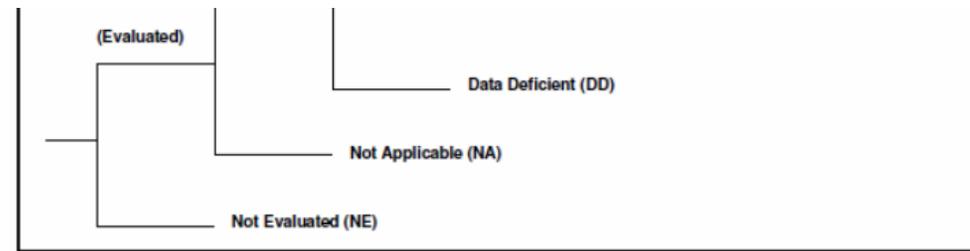


Figure 1. Structure of the categories at regional level.

IUCN Red List

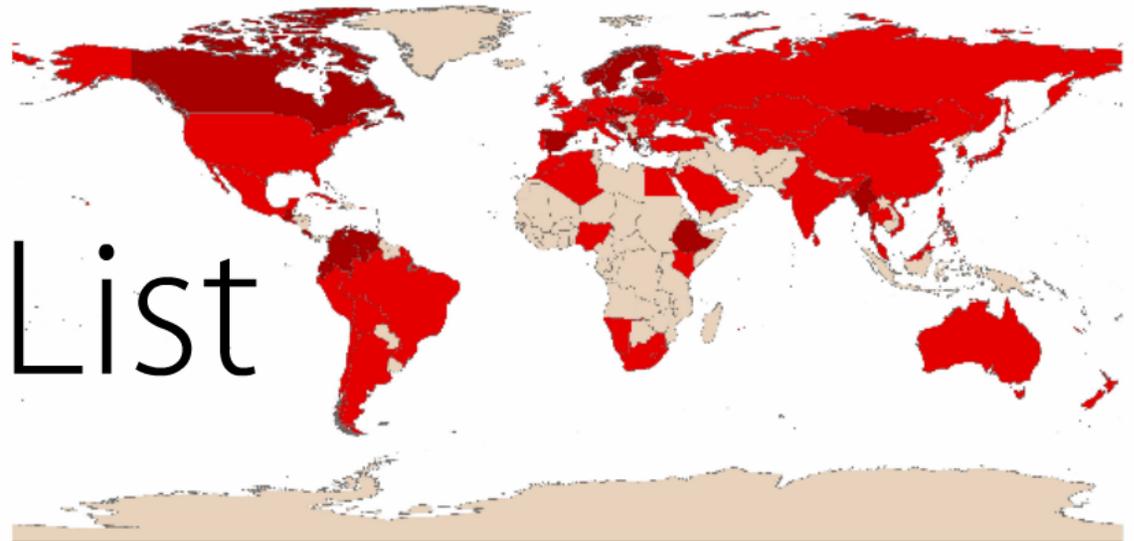


Figure 1. Countries with National Red Lists using IUCN Categories and Criteria (dark red) and other systems (bright red). Data from Collen et al. 2008, Miller et al. 2007 and UNEP-WCMC 1994.



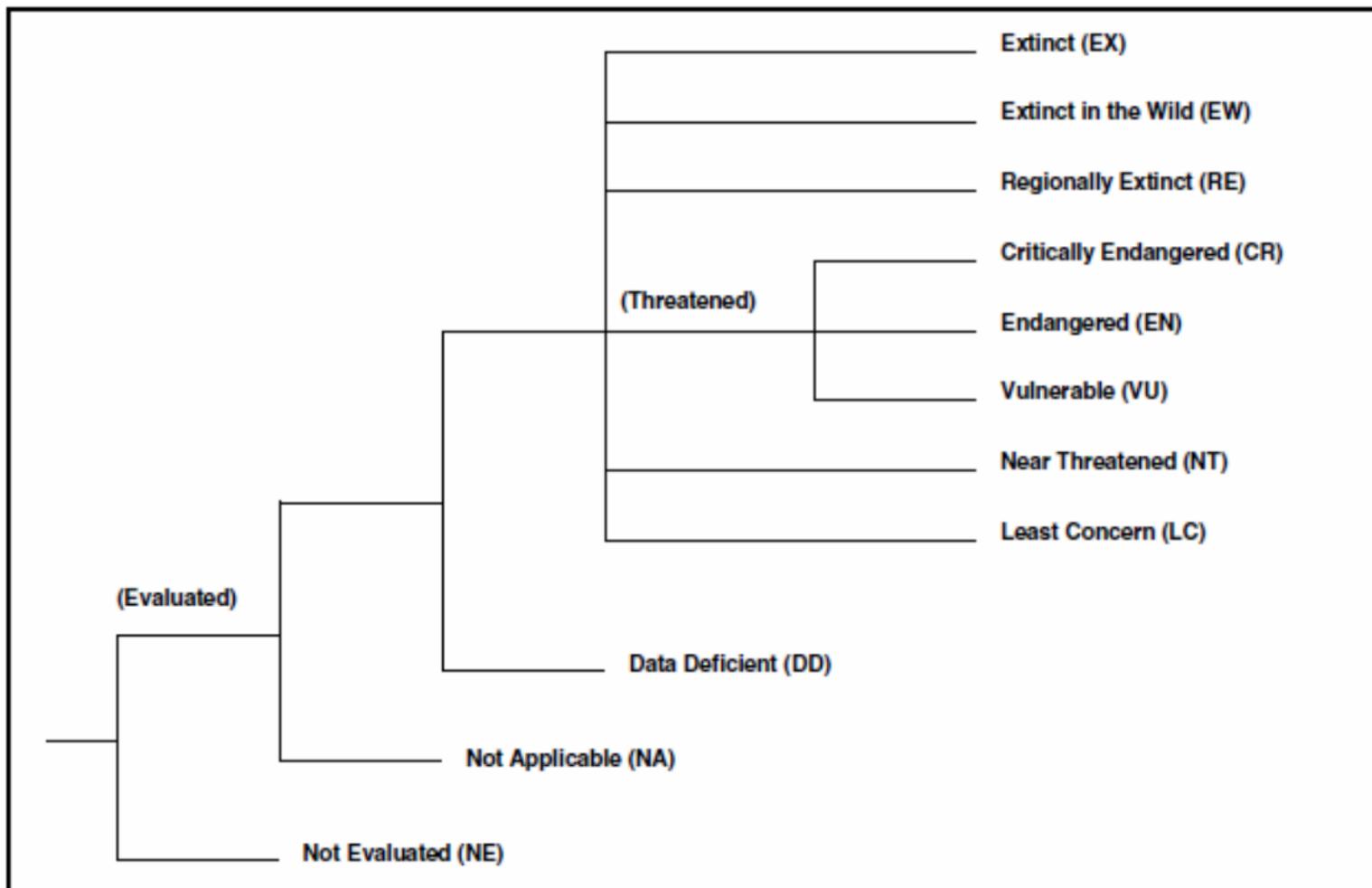


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Draft Standard

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Originates with FSC

HCVs 1-4

- 1: Areas with globally, regionally or nationally significant concentrations of biodiversity values
 - HCV 1.1: primary forest (e.g. BCI)
 - HCV 1.2: threatened or endangered species
 - HCV 1.3: endemic species
 - HCV 1.4: critical habitats
- 2: HCV 1 at a landscape level
 - e.g. an entire forest or grassland
- 3: Rare, threatened or endangered ecosystems
- 4: Areas that provide basic ecosystem services in critical situations



EU

- Cross compliance with Habitats and WB Directives
- Guidance for "ongoing activities"

U.S.-CSBP

- Planning is at the heart of biodiversity principle
- Assess information on known occurrences of rare, threatened, and endangered species and communities

Conversion



Draft Standard
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e.g., grasslands, natural forests (4.3)

Originates with FSC

HCVs 1-4

1: Areas with globally, regionally or nationally significant concentrations of biodiversity values

- HCV 1.1: protected areas (e.g. national parks)
- HCV 1.2: threatened & endangered species
- HCV 1.3: endemic species
- HCV 1.4: critical temporal use

2: HCV 1 at a landscape level e.g., an entire forest or watershed

3: Rare, threatened or endangered species

4: Areas that provide basic ecosystem services in critical situations

Avoiding negative impacts from biomass production and biofuel operations (4.1)

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Critically imperiled, imperiled, or vulnerable by NatureServe and

Good practice for managing
 This good practice is intended to provide guidance for forest managers on how to manage forests in a way that is consistent with the principles of the FSC. It is intended to be used in conjunction with the FSC standards and the FSC Chain of Custody (CoC) standards.

- **Thinning/belling trees** - Thinning or belling trees should be done in a way that does not result in a net loss of biodiversity. If trees are used for wood products, they should be managed in a way that is consistent with the FSC standards.
- **Staking** - Staking should be done in a way that does not result in a net loss of biodiversity. If staking is used for wood products, it should be managed in a way that is consistent with the FSC standards.
- **Site preparation** - Site preparation should be done in a way that does not result in a net loss of biodiversity. If site preparation is used for wood products, it should be managed in a way that is consistent with the FSC standards.
- **Moving regimes** - Moving regimes should be done in a way that does not result in a net loss of biodiversity. If moving regimes is used for wood products, it should be managed in a way that is consistent with the FSC standards.
- **Track construction or other activities** - Track construction or other activities should be done in a way that does not result in a net loss of biodiversity. If track construction or other activities are used for wood products, they should be managed in a way that is consistent with the FSC standards.



Map showing various land use and conservation areas, with different colors representing different categories. The map includes a legend and a title.

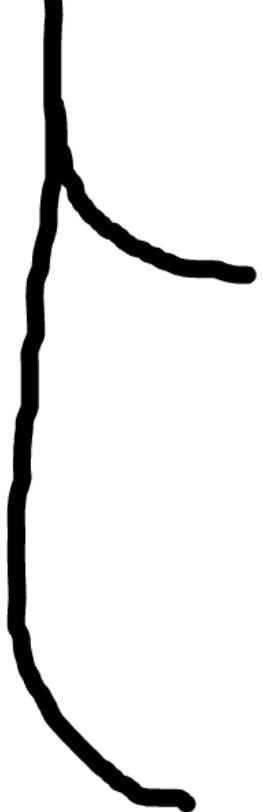
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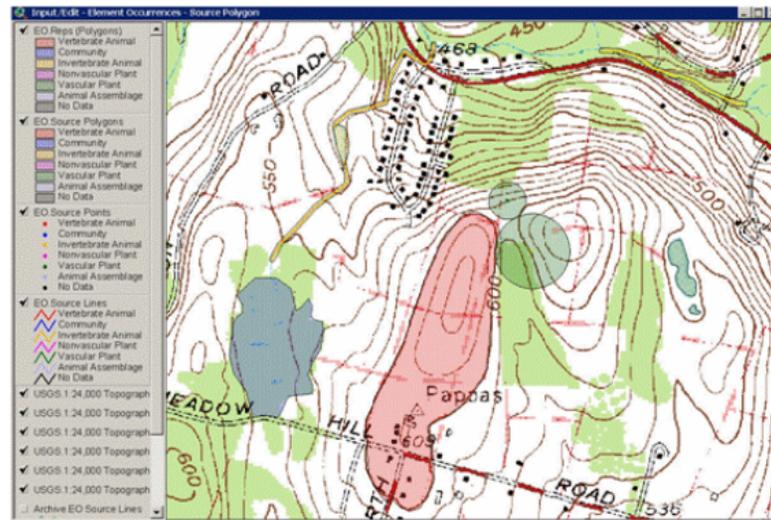


Critically imperiled, imperiled, or vulnerable by NatureServe and Natural Heritage programs



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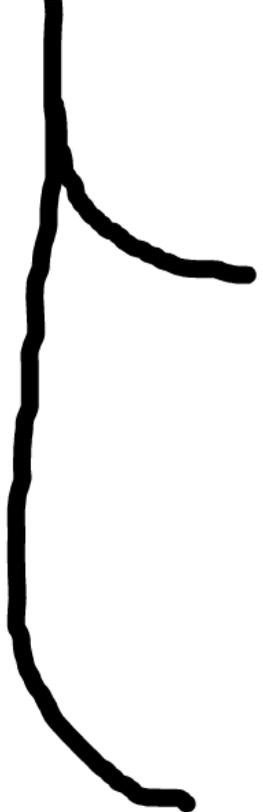
Important wildlife species and habitats identified in regional, state, or national conservation plans (e.g., state wildlife action plans, conservation organization eco-regional conservation plans)



The conservation status of a species or ecosystem is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = Global), N = National, and S = Subnational). The numbers have the following meaning:

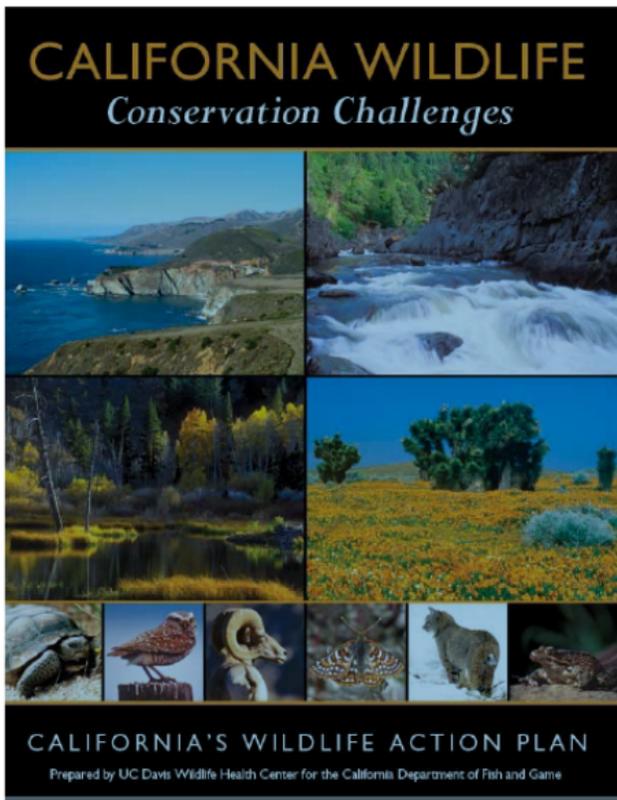
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Reliability, overlap and



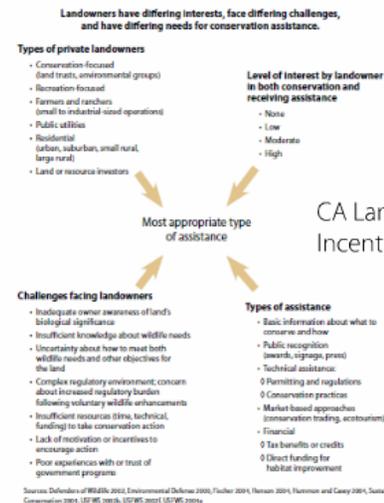
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- Identifies agricultural impacts
- 17 recommendations for the Central Valley

Fig. 14.6. Conservation Assistance to Private Landowners



Money and technical assistance to help the landowner assess habitat conditions and prescribe specific habitat management actions within the framework of an established management plan.

Sources: Defenders of Wildlife 2002, Environmental Defense 2000, Fisher 2004, Hansen 2004, Plummer and Casey 2004, Sustainable Conservation 2004, USFWS 2006, USFWS 2007, USFWS 2008

Fig. 14.6. Conservation Assistance to Private Landowners

Landowners have differing interests, face differing challenges, and have differing needs for conservation assistance.

Types of private landowners

- Conservation-focused (land trusts, environmental groups)
- Recreation-focused
- Farmers and ranchers (small to industrial-sized operations)
- Public utilities
- Residential (urban, suburban, small rural, large rural)
- Land or resource investors

Level of interest by landowner in both conservation and receiving assistance

- None
- Low
- Moderate
- High



CA Landowner Incentives Program

Challenges facing landowners

- Inadequate owner awareness of land's biological significance
- Insufficient knowledge about wildlife needs
- Uncertainty about how to meet both wildlife needs and other objectives for the land
- Complex regulatory environment; concern about increased regulatory burden following voluntary wildlife enhancements
- Insufficient resources (time, technical, funding) to take conservation action
- Lack of motivation or incentives to encourage action
- Poor experiences with or trust of government programs

Types of assistance

- Basic information about what to conserve and how
- Public recognition (awards, signage, press)
- Technical assistance:
 - ◊ Permitting and regulations
 - ◊ Conservation practices
- Market-based approaches (conservation trading, ecotourism)
- Financial
 - ◊ Tax benefits or credits
 - ◊ Direct funding for habitat improvement

Money and technical assistance to help the landowner assess habitat conditions and prescribe specific habitat management actions within the framework of an established management plan.

Source: Defenders of Wildlife 2002, Environmental Defense 2000, Fischer 2004, Henson 2004, Hummon and Casey 2004, Sustainable Conservation 2004, USFWS 2002b, USFWS 2002f, USFWS 2004a

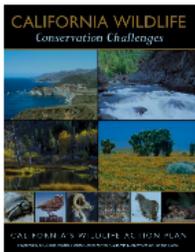
Reliability, overlap and
cost of data depends on
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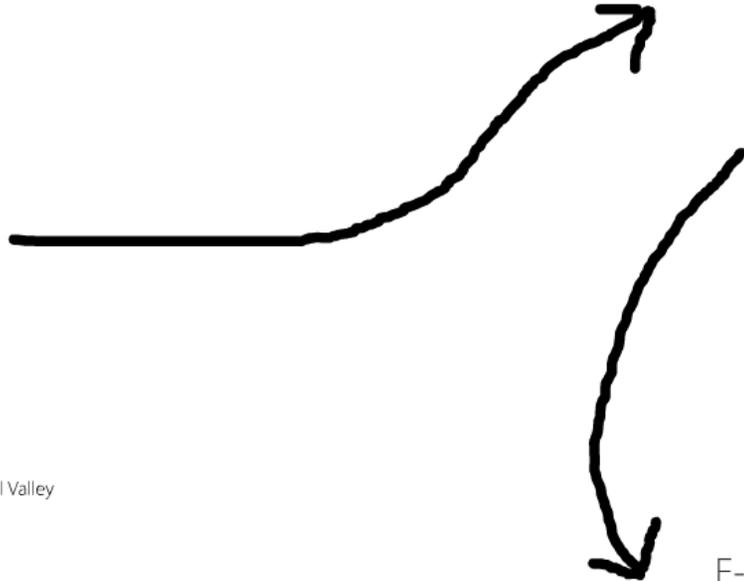
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- Identifies agricultural impacts
- 17 recommendations for the Central Valley



Practices:

- a stand as appropriate to provide
- avoid harvesting during wildlife by adhering to local primary nest
- retain sufficient vegetative cover (leaving stubble on the field, less effective practices)
- disruptive mechanical operation (harvesting) timed to minimize reproduction and migratory period

E-T-R species:

- mapping, cataloging, and monitoring
- design and adoption of set-asides, treatments, or other appropriate strategies identified in the plan

Practices:

- a stand as appropriate to provide structural habitat that supports native wildlife
- avoid harvesting during wildlife nesting, calving, fawning, and brood-rearing seasons by adhering to local primary nesting and fawning/calving season dates
- retain sufficient vegetative cover for wildlife inhabiting their biomass fields (e.g. leaving stubble on the field, leaving strips of unharvested biomass, and/or other effective practices)
- disruptive mechanical operations (such as, but not limited to, mowing, discing, and harvesting) timed to minimize impacts on wildlife, especially during critical reproduction and migratory periods

E-T-R species:

- mapping, cataloging, and monitoring of biodiversity elements
- design and adoption of set-asides, buffers, corridors, conservation management

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Conversion

Relative Vegetation Contribution	Qualifying Habitat Management	Non-qualifying Habitat Management
High (Native vegetation > 10%)	Retention of natural vegetation Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR	Conversion Conversion Conversion Conversion Conversion
Medium (Native vegetation 10-20%)	Retention of natural vegetation Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR	Conversion Conversion Conversion Conversion Conversion
Low (Native vegetation < 10%)	Retention of natural vegetation Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR	Conversion Conversion Conversion Conversion Conversion
Very Low (Native vegetation < 5%)	Retention of natural vegetation Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR Retention of low-intensity management OR	Conversion Conversion Conversion Conversion Conversion

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Conversion

Land Conversion Matrix

National Vegetation Classification & Current Management Regime*	Qualifying Future Management**	Non-Qualifying Future Management
A) Un-Managed vegetation ("natural")	Maintain in natural vegetation Maintain under non-extractive management, OR If secondary forest and G4-G5 or S4-S5 community types ³ shift to extensively managed vegetation	Convert either G1-G3 or S1-S3 types to managed or cultural vegetation Convert either G4-G5 or S4-S5 types to intensively managed or cultural vegetation
B) Managed vegetation ("semi-natural") Extensively managed forest or non-forest lands	Restoration to natural vegetation Maintain as extensively managed vegetation Shift to intensively managed vegetation	Convert to cultural vegetation
C) Managed vegetation ("semi-natural") Intensively managed semi-natural forest and non-forest lands	Restoration to extensively managed vegetation Maintain as intensively managed vegetation	
D) Cultural vegetation planted with [native] species	Restoration to natural/semi-natural vegetation Maintain in cultural vegetation with [native] species Convert to E	↓ ?
E) Cultural vegetation planted with [exotic species/short rotation]	Restoration Maintain in cultural vegetation	



Protecting land with high biodiversity value or high carbon stock (4.1)

Identified as containing values of global, regional or local importance

Areas nationally or internationally protected

Classified as "High Conservation Value"

e.g., grasslands, natural forests (4.3)

Originates with FSC HCVs 1-4

- 1. Areas with globally, regionally or nationally significant concentrations of biodiversity values
 - HCV 1: protected areas (e.g., SAC)
 - HCV 2: threatened & endangered species
 - HCV 3: endemic species
 - HCV 4: critical riparian/terrestrial
- 2. HCV 1 at a landscape level
 - e.g., an entire forest or grassland
- 3. Rare, threatened or endangered ecosystems
- 4. Areas that provide basic ecosystem services in critical situations

U.S. Federal Endangered Species Act

- Protects endangered and threatened (listed) species in all or significant part of their range
- Designates critical habitat

Section 4: Recovery plans

Section 9: Unlawful to "take" any endangered animal species, including their critical habitat

Note: plants protected by state law

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Draft standard requires planning

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- mapping, cataloging, and monitoring of biodiversity elements
- design and adoption of set-asides, buffers, corridors, conservation management treatments, or other appropriate strategies to achieve conservation objectives identified in the plan

Conversion



- EU

- Cross compliance with Habitats and WB Directives
- Guidance for "ongoing activities"

and

Good practice for managing woodland with great crested newts

This good practice guidance for routine woodland operations should maintain or improve the habitat for great crested newts and minimises the risk of harming individuals or damaging their breeding sites or resting places. If you follow this good practice, and carry out the operations as described here, we would not expect you to require a protected species licence.

- **Thinning/felling/tree surgery** – phase any work near a pond used by great crested newts over several years, so that within 100m of a pond only 25% of the area is affected in any one year.
- **Stacking** - within 100m of a pond, try to avoid stacking timber unless such stacks are to be left solely as habitat. If you do have to harvest and stack timber in close proximity to a pond used by great crested newts, remove the stacks within a few weeks and certainly before October.
- **Extraction** – where possible extract material using a forwarder rather than a skidder to reduce the risk of harming great crested newts.
- **Site preparation** – try to avoid scarification or burning up of brash where great crested newts use the woodland, but if it is necessary, ensure all site preparation is done before the area becomes suitable habitat – ideally within a few months of felling. Do not rake brash or scarify areas within 100m of a breeding pond.
- **Mowing regimes** – within 100m of a pond, modify the ride and glade mowing programme to ensure only a small proportion of the grassland habitat is cut in any one year.
- **Track construction or other ground-works** – avoid undertaking such activities within 100m of a pond.

Draft Standard

Conserve or enhance by...

Protecting land with high biodiversity value or high carbon stock (4.1)

Avoiding negative impacts from biomass production and biofuel operations (4.1)

Identified as containing values of global, regional or local importance

Areas nationally or internationally protected

Classified as 'High Conservation Value'

Highly productive, natural forests (HNF)

Originates with FSC
HCV 1-4

- 1. Areas with habitat, especially secondary or riparian, concentrations of biodiversity
- 2. HCV 1 or a landscape-level area, as identified or specified
- 3. Rare, threatened or endangered ecosystems
- 4. Areas that provide basic ecosystem services in critical situations



Europe
• Natura 2000
• Special Areas of Conservation and Special Protection Areas
• Species Protection
• Member State Implementation

California
• CEQA & WCEP
• Voluntary Local Program
• Forest Practices Act

U.S. Federal Endangered Species Act
• Protects endangered and threatened (listed) species that are significant part of their range
• Designates critical habitat

Section 4: Prohibitions
Section 6: Labeling rules for endangered animal species, including their critical habitat
Note: state antidegradation law
Section 7: Substantiating Habitat (HCV)

both standard requires planning

Note about standards
• not protected forest (HCV) status, and then no penalty for a high biodiversity value area under state law (critical habitat for a bird)
• sufficient obligations to high biodiversity lands may be considered in California CEQA and WCEP program (potential penalty if converted before 2017 after 2008)
• if a project is completed in a measure to improve and protect, does not require a high biodiversity value of a high biodiversity area, and does not require a high biodiversity area to be converted into a non-forest land cover.

EU
• Cross compliance with Habitats and WB Directives
• Guidance for 'ongoing activities'



U.S.-CSBP

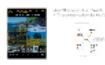
- Planning is at the heart of biodiversity principle
- Assess information on known occurrences of rare, threatened, and endangered species and communities

Critically imperiled, imperiled, or vulnerable by NatureServe and Natural Heritage programs

Important wildlife species and habitats identified in regional, state, or national conservation plans (e.g., state wildlife action plans, conservation organization eco-regional conservation plans)



It's not an abundant natural resource



- Practices
- avoid an appropriate to provide structural habitat that supports native wildlife
 - avoid harvesting during wildlife nesting, caring, and brood-rearing seasons by silvicultural primary logging and being right timing clear cuts
 - retain sufficient vegetative cover for wildlife inhabiting their biomass fields, log leaving suitable on the field, leaving strips of unharvested biomass, and/or other effective practices
 - disruptive mechanical operations such as but not limited to mowing, dozing, and harvesting, aimed to increase habitat on wildlife, especially during critical reproduction and migratory periods

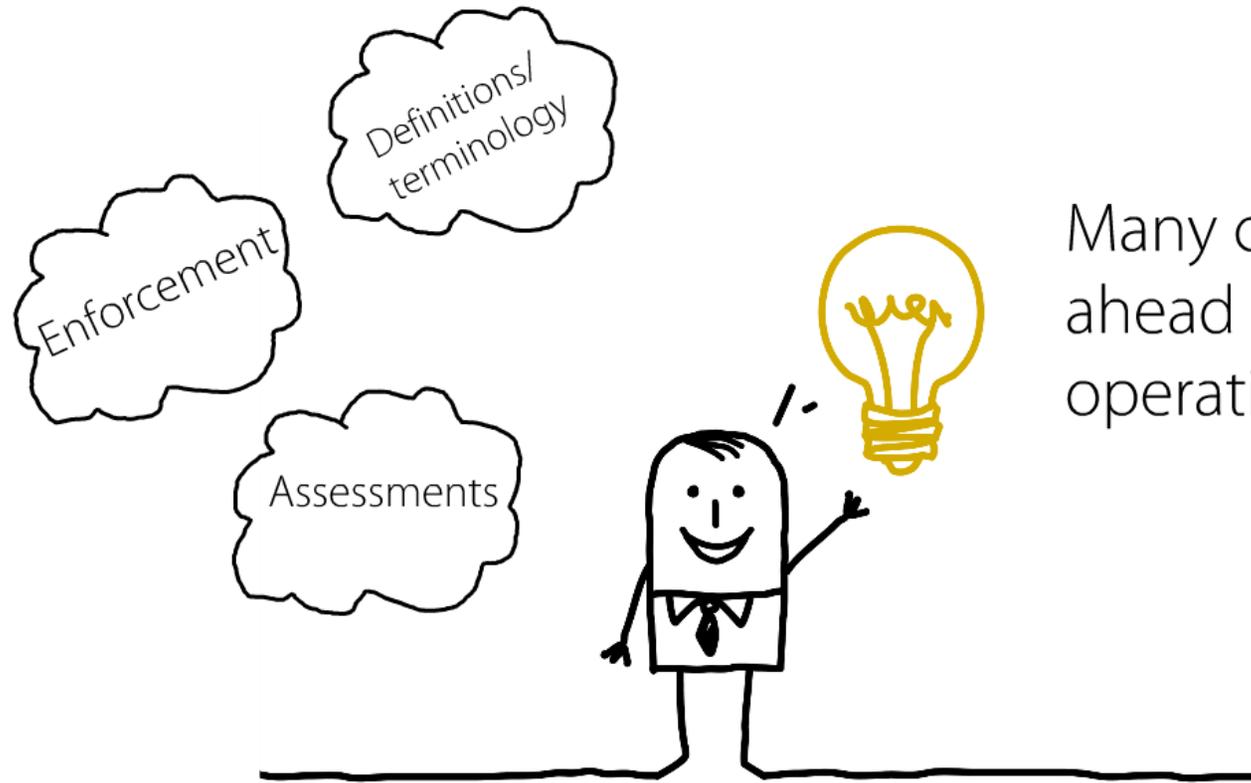
E.T.A. species
• mapping, cataloging, and monitoring of biodiversity elements
• design and adoption of all-issues bio-fuels, conditions, conservation management, treatment, or other appropriate strategies to achieve conservation objectives identified in the plan



Many challenges lie ahead in standards operationalization.

Biodiversity & Biofuels

Thank you!
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Many challenges lie ahead in standards operationalization.

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