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Ms. Mary Nichols
Chair
California Air Resources Board
California Environmental Protection Agency
1001 I Street
Sacramento, CA 95814

Dear Chair Nichols:

Thank you for the opportunity to comment on the forest-sector greenhouse gas (GHG) inventory, issued by your staff on August 13, 2007. Our comments focus particularly on the forestry sector, and on the methods and data gaps involved in developing an accurate inventory and baseline for 1990 through 2020, as required by the Global Warming Solutions Act of 2006 (AB 32).

Over the past several months, a number of representatives from our Research Station and Region have been working with your staff and other state agencies to identify data gaps and differences in methodologies that have been used so far to establish the 1990 baseline for the forestry sector. As your staff analysts are fully aware, the various estimates used by the California Energy Commission and others differ widely. The current inventory data, which appear in your staff report of August 13, 2007, are derived from CALVEG vegetation data, and changes in inventory were calculated by using land use-land cover change detection techniques that are known for lack of precision and are used to best advantage when assessing relative change in a spatially explicit context, not when conducting statewide analyses. While these methods are often used by many professionals and scientists to establish rough estimates of vegetation change, most acknowledge that the spatial resolution of both the vegetation data and the change detection techniques do not support the level of precision required by statewide carbon inventories.

The fundamental challenge can be summarized as follows: Forest-based carbon stock accounting uses statistically-valid field plot samples that represent the entire forest to estimate carbon stocks over larger areas. There are many methods for doing this, and the choice of methods depends on the application. There are also several sources of error, but they tend to sort into two basic types: 1) the land area classified as "forested"; and 2) the methods used to determine the type of vegetation in those forested areas from the sample plots. The inventory numbers analyzed by your staff and other cooperating state and federal agencies vary widely because of differences in the estimates of forest area and the estimates of the vegetation in those areas. For example, we know that the inventory numbers from the 1980s do not include parks and reserved areas outside of national forests and that these areas account for about 10 percent of the live carbon in California forests as of 2006. We also know that pre-1990s national forest inventories varied widely because of regional differences in inventory protocols and methods, sampled only from timberland (not other forest land such as oak woodlands), and did not sample wilderness. Given the inherent differences in both stocks and fluxes in wilderness (and other forest land), these issues present inevitable difficulties when attempting to reconcile historical datasets with inventory protocols and methods currently used for forest carbon accounting.

We feel it is important to [illegible]
invested in this extremely challenging task. The California Energy Commission, Winrock International, California Department of Forestry and Fire Protection, as well as your own very knowledgeable staff have worked diligently to bring the various forest-sector GHG inventories currently published to bear on the Air Resources Board's pressing need to establish the 1990 inventory level required by AB 32. However, in the course of analyzing the conflicting inventory numbers, it has become quite clear to all who have worked on the technical side of this problem that more work is required in order for the state to have the confidence in the underlying data and methods it will need to carry forward its regulatory responsibilities under AB 32.

Pursuant to the state's more immediate need, the Forest Service has dedicated a lead scientist (Dr. Jeremy Fried) and one analyst from our Forest Inventory and Analysis (FIA) unit at the Pacific Northwest Research Station to generating an estimate of live carbon stores and flux for the 1990 forestry baseline inventory for California by the first week in November, 2007. This is a short-term task that we believe we can accomplish within the decision timeframe currently being pursued by the Air Resources Board. It is our intention to submit a report to the Board staff prior to the December 7, 2007 Board meeting that will provide the 1990 inventory number and a full accounting of the data sources and methods used to establish that inventory.

We also recommend that the Board develop a longer-term process by which it will coordinate a federal and state effort to establish methods by which both the Air Resources Board and the US Forest Service will report forest-sector GHG fluxes and carbon stores on an ongoing basis. Since it is important to both the state of California and the federal government to have accurate annual reporting mechanisms, we believe it is in our mutual interest to work together to institutionalize that process. To this end, our climate science policy coordinator, Dr. Mark Nechodom, is working with both FIA and our National Inventory reporting group at the Northern Research Station (Drs. Richard Birdsey and Linda Heath) to develop a technical support strategy in order that the Forest Service can continue to contribute to California's ongoing GHG inventory needs.

The Forest Service is keenly interested in how it may contribute productively to climate change adaptation and mitigation strategies. In our current national discussions, the two strategies are inseparable. We appreciate the opportunity to work with the Air Resources Board, its staff and several other state agencies to explore all options to make California's cutting-edge efforts successful. To this end, we are committing substantial time and staff expertise, not only to the GHG inventory effort, but to several other aspects of California's climate change strategy. We look forward to discussions with the Board and staff about how we might pursue our mutual interests in improving GHG inventory data sources and methodologies in the near future.

Sincerely,

VICKI A. JACKSON
Acting Regional Forester

JAMES R. SEDELL
Station Director

cc: Garland Mason, Richard Birdsey, Linda Heath, Bill Snyder, California Department of Forestry and Fire Protection, Richard Bode, California Air Resources Board, Mark Nechodom, Bov Eav, Jeremy S Fried, Jim Pena, Bruce Goines

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