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Climate Action Reserve
523 W. Sixth Street, Suite 428
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To whom it may Concern:

Weyerhaeuser Company (Weyerhaeuser) appreciates the opportunity to provide comments on draft Version 3.3 of the CAR Forest Project Protocol. Weyerhaeuser has participated as an advisor in California's early efforts to establish forest protocols, participating in the Commission's May 2004 workshop. Since then we have responded to multiple requests for comments on various versions of the Forest Sector Protocol (including Version 2.0 in September 2007, Version 3.0 in January 2009, Version 3.1 in May 2009, and the CAR Forest Project Protocol white papers in May 2011).

Weyerhaeuser Company, one of the world's largest forest products companies, was incorporated in 1900. In 2011, sales were $6 billion. Weyerhaeuser grows and harvests trees; manufactures and distributes a variety of forest products; and owns five home building subsidiaries, including Pardee homes, located in California. In the U.S., Weyerhaeuser owns or manages over 6 million acres of forestland, and it is in this context that we comment on this protocol.

Weyerhaeuser Company is also a member of the National Alliance of Forest Owners and supports the comments they submit on this draft protocol. You will find the details of their comments below. To summarize, there are three critical roadblocks that remain troubling for all landowners; 1) the 100-year time commitment remains impractical for landowners. This could be ameliorated by removing the penalty for early termination and replacing with partial credit relative to the length of the commitment based on the ton-year accounting method as described by the IPCC; 2) there are no carbon or environmental reasons to ban the use of broadcast fertilization as specified in Section 2.1.2. In fact, there are a number of studies that support the finding that increased N-availability actually causes more litter deposition, which, over multiple rotations, results in more soil organic build-up in the stand; and 3) there are no carbon or environmental reason to limit clearcut size to 40 acres or less as specified in Section 3.11.4. This size limitation does not match standard environmental mitigation measures in most regions in the U.S. (besides California). In addition, from an environmental perspective, more entries into a forest (caused by smaller clearcut size) results in more road use and the potential for more risk of sedimentation in streams.

If the three road blocks specified above and described in detail below can be fixed, CAR could significantly increase the likelihood of incentivizing quality forest carbon offset projects in the United States.

On a positive note, Weyerhaeuser does support the continued recognition of all three third-party forest certification standards in use in the U.S.- the Sustainable Forestry Initiative, the American Tree Farm System, and the Forest Stewardship Council- as a vehicle to demonstrate adherence to the requirement to employ sustainable long-term harvesting practices under Section 3.11.1.

Specific Comments, based on comments submitted by NAFO, 7/18/12

1. Section 2.1.2. Improved Forest Management- requirement against the use of broadcast fertilization,

Under requirement 3 of Section 2.1.2., Improved Forest Management, the protocol states that a project is only eligible for the improved forest management project if it "does not employ broadcast fertilization." There is no carbon or environmental rationale for this requirement. In fact, in the CAR Protocol white paper, *Accounting for Carbon in Soils,* the authors convey that many studies show that fertilization can increase soil carbon. In addition to the studies mentioned in the Soil Carbon white paper, there are numerous other studies that support the finding that increased N-availability actually causes more litter deposition and larger forest floor accumulations[1]. Forest floors have been found to decompose proportionally at the same rate, whether big or small,[2] so if one does activities such as fertilization, then over multiple rotations there should be more soil organic matter built up in the ecosystem, which results in increased productivity resulting in a beneficial positive feedback.

A recent analysis also found that fertilization of southern pine plantations has a substantial carbon benefit due to enhanced productivity and carbon sequestration in biomass. In fact, the benefit is roughly 20:1 relative to carbon emissions associated with the manufacturing, transport, and application of the fertilizer[3].

Any nitrous oxide emissions that result from N fertilization can be accounted for in the carbon accounting. Nitrous oxide emissions from N fertilizer application can be estimated using the method

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[1] Phelan, J and H.L. Allen. 2008. Have repeated applications of nitrogen and phosphorus to a loblolly pine (*Pinus taeda* L.) plantation changed stand productivity and soil nutrient supply? *Canadian Journal of Forest Research.* 38: 637-644; Legget, Z.H. and D.L. Kelting. 2006. Fertilization effects on carbon pools in loblolly pine plantations on two upland sites. *Soil Science Society of America Journal* 70:279-286.

[2] Zerpa, J.L., Allen, H.L. Campbell, R.G. Phelan, J., Duzan, H. 2010. Influence of variable organic matter retention on nutrient availability in a 10-year-0ld loblolly pine plantation. *Forest Ecology and Management.* 259: 1480-1489; Liu, L. King, J.S., Booker, F.L, Giardina, C.P., Allen, H.L. 2008 Enhanced litter input rather than chances in litter chemistry drive soil carbon and nitrogen cycles under elevated CO2: a microcosm study. *Global Change Biology* 15: 441-453.

[3] Albaugh, T.J., Vance, E.D., Gaudreault, C. Fox, T.R., Allen, H.L., Stape, J.L, and R. A. Rubilar. 2012. Carbon emissions and sequestration from fertilization of pine in the southeastern United States. Forest Science (in press).

recognized by the IPCC. This should be included in both the baseline calculations (if fertilizer is used) and the project[4].

Recommendation: Remove the ban against broadcast fertilization under project eligibility and appropriately accounting for it in the calculation of the project baseline.

2. Section 3.4 - Minimum Time Commitment – penalty for early termination.

Section 3.4 - Minimum Time Commitment requires monitoring and verification that registered CRTs are kept out of the atmosphere for 100 years with a penalty for voluntary early termination. 100 years is a time frame that is impractical for landowners and a penalty for early termination up to 50 years is enough of a barrier to prevent landowner participation. Moreover, there is an atmospheric benefit to even temporary sequestration, so why would a protocol disincentive project participation with no corresponding atmospheric justification?

Chapter 2 of the IPCC Special Report on Climate Change, Land Use, Land-Use Change and Forestry[5] explains an alternative approach to comparing activities that sequester carbon for different lengths of time by using an equivalency factor based on a policy determined length of time considered to be "permanent". The basic argument is that there is a benefit of temporary sequestration and it is based on the decay rate of CO2 in the atmosphere. This accounting method is most commonly referred to as ton-year accounting and has been discussed at length in the literature (Fearnside et al 2000; Lashof and Hare 1999; Moura-Costa and Wilson 2000; Maclaren 2000)[6]. The IPCC method provides a calculation that requires payback of CRTs depending on the point of termination. The earlier the termination, the more CRTs must be paid back.

For example, if a project keeps a ton of CO2 (one CRT) out of the atmosphere for 40 years, the net impact in CO2 reductions would be the integrated difference between a pulse of CO2 at year 1 minus a pulse at year 40, which would be, over a 100 year basis, 12.8 or 31.8% of full credit. Hence, if a Project Operator decides to terminate a project after 40 years, they would be required to pay back 68.8 CRTs for

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[4] IPCC, 2006. Forest land. In: IPCC Good Practice Guidance for Land Use, Land-Use Change, and Forestry. The Intergovernmental Panel on Climate Change (IPCC), Institute for Global Environmental Strategies, Hayama, Kanagawa, Japan, pp. 3.23-3.68.

[5] IPCC. 2000. Chapter 2: Implications of Different Definitions and Generic Issues. In: Land Use, Land-Use Change and Forestry (R.T. Watson, I.R. Noble, B. Bolin, N.H. Ravindranath, D.J. Verado, and D.J. Dokken, Eds.) Cambridge University Press, U.K.

[6] Fearnside, Philip M., Daniel A. Lashof, and Pedro Moura-Costa. 2000. Accounting for time in mitigating global warming through land-use change and forestry. *Mitigation and Adaptation Strategies for Global Change.* 5: 239-270; Lashof, DA and B. Hare. 1999. The role of biotic stocks in stabilizing greenhouse gas concentrations at safe levels. *Environmental Science and Policy.* 2(2): 101-109; Maclaren, Piers J. 2000. *Trees in the Greenhouse: the role of forestry in mitigating the enhanced greenhouse effect.* Forest Research Bulletin No. 219. Rotorua, New Zealand; Moura-Costa, Pedro and Charlie Wilson. 2000. An equivalence factor between CO2 avoided emissions and sequestration- description and applications in forestry. *Mitigation and Adaptation Strategies for Global Change. 5: 51-60.*

every 100 CRTs that were registered. If the Project Operator waits until 80 years or 100 years they would have less or no CRTs to pay back. Thus there is an incentive, matched by actual benefit to the atmosphere, to keep carbon out of the atmosphere.

The table below shows the different percentage of credits based on a 100 year basis.

Table 2-6: *Credit as a function of project duration.*[a]

Project Duration (yr)	Percentage of Full Credit
0	0.0
10	7.4
20	15.0
30	22.9
40	31.2
50	39.9
60	49.3
70	59.4
80	70.6
90	83.3
100	100.0

[a] Illustrates partial credit that would be received by projects that sequester carbon for various durations using the ton-year derived by analogy to 100-year Global Warming Potentials, as illustrated in Figure 2-4. [7]

[7] From Section 2.3.6.3. Equivalent Time and Ton-year. *IPCC Special Report on Land-use, Land-use Change and Forestry. 2001.*

This method was discussed and endorsed by the ANSI Forest Carbon Standards Committee though there was disagreement on the length of time required for full credit.[8]

Recommendation: Modify the requirement to keep CRTs out of the atmosphere for 100 years by allowing partial crediting based on years kept out of the atmosphere per partial credit scale shown above.

3. Section 3.11.4 - Balancing Age and Habitat Practices- 40 acre clearcut limitation

Section 3.11.4 - Balancing Age and Habitat Practices requires a limitation on harvesting stands no greater than 40 acres in size. This arbitrary requirement would significantly undermine participation in the CAR Protocol by most landowners due to the fact that this size limitation is inconsistent both with standard environmental mitigation measures and the economics of harvesting in many regions of the United States. Additionally, this restriction has no impact in how carbon in forests is accounted for in forestry operations.

We recognize that appropriate limits to clearcut size do provide environmental benefits as recognized by the leading certification programs. Presumably this is one of the reasons that the CAR Protocol requires participation in a forest certification program in section 3.11.1. As part of their criteria, these programs all provide reasonable limits on clearcut size based on sound silvicultural and sustainability principles. There is little likelihood of a landowner engaging in the added expense of certification and then compounding that expense with this artificial limit on clearcut size.

In addition, clearcutting as a harvest and regeneration method has sound silvicultural and ecological bases:

- It allows sunlight to reach the ground so newly planted seedlings quickly take root and regenerate the forest. As such, it's the system best suited to commercially important shade-intolerant species, including Douglas-fir in the western United States and loblolly pine in the southern United States. These tree species reach their full growth and yield potential only when grown in full sunlight.
- It provides habitat for animal species, some of which are of high conservation priority, that are associated with early successional plant communities[9]. Some plant species in these communities also are of high priority.

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[8] "A Bi-National Forest Carbon Offset Standard: Report on a Development Process". Produced by American Forest & Paper Association, August 2011.

[9] Dessecker, D. R., and D. G. McAuley. 2001. Importance of early successional habitat to ruffed grouse and American woodcock. *Wildlife Society Bulletin* 29 (2):456-465; Dettmers, R. 2003. Status and conservation of

- It results in stands of even-aged trees that produce wood products with more uniform qualities.
- As noted above, it requires fewer roads and entries into the stand than partial harvesting systems, thus reducing the risk of sedimentation in streams.
- It is often more efficient, cost-effective and safer than partial harvesting systems.

Overall, the smaller the allowable clearcut size, the more roads need to be built and the more costly the silvicultural operation becomes. This arbitrary limitation discourages landowner participation, offers no additional environmental benefit, and adds nothing to the proper accounting of carbon stored as part of the protocol.

Recommendation- Eliminate 40 acre clearcut limitation.

Thank you again for the opportunity to comment. We are available to answer any questions you may have and look forward to an opportunity to make further contributions to your efforts as you go forward with the development of additional rules that will apply to commercial, sustainably managed forests.

Sincerely,

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Sustainable Forests & Products

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shrubland birds in the northeastern US. *Forest Ecology and Management* 185: 81-93; Fuller, T. K., and S. DeStefano. 2003. Relative importance of early-successional forests and shrubland habitats to mammals in the northeastern United States. *Forest Ecology and Management* 185:75-79; Litvaitis, J. A. 2001. Importance of early successional habitats to mammals in eastern forests. Wildlife Society Bulletin 29(2):466-473; Litvaitis, J. A. 2003. Shrublands and early-successional forests: critical habitats dependent on disturbance in the northeastern United States. Forest Ecology and Management 185:1-4.