Society for Conservation Biology
A global community of conservation professionals

May 24, 2010

Council on Environmental Quality
722 Jackson Place NW
Washington DC 20503

Attn: Mr. Ted Boling, Senior Counsel

May 24, 2010

Delivered by Email and Registered Mail:

RE: Comments from the Society for Conservation Biology (SCB) on Docket ID No. fr23fe10-51, Comments on the National Environmental Policy Act (NEPA) Draft Guidance, "Consideration of the Effects of Climate Change and Greenhouse Gas Emissions.'" --http://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa

SYNOPSIS

1) The Society commends CEQ for proposing guidance on this issue and suggests that CEQ remind agencies that their duty in this regard is current and on-going but also recommends that CEQ revise its proposed guidance to address land management and other issues we note below more directly and seek one more round of public comments.

2) The Society notes in this document additional powers and duties of CEQ and the President that should be the basis for addressing climate change within and beyond the NEPA process. We do so now because they are inextricably related with NEPA and are concurrent with the development of general NEPA guidance, in that at least one major deadline for CEQ's climate program is October 5, 2010 by which time its recommendations to the President for addressing climate change across the Executive Branch are due. That report should address all aspects of climate change planning, and not just adaptation.

3) The Society notes its top tier recommendations to CEQ (primarily for use in developing climate policies beyond the NEPA guidance) to address mitigation and preparation of climate change and land-use impacts including: (1) protect existing carbon stores in carbon dense ecosystems such as mature and old-growth forests; (2) reduce existing stressors from land-use activities to provide ecosystems and their species with the best chance to adapt to climate change, thereby reducing the need and expense of endangered species listings, and even worse, species extirpations; (3) direct federal agencies to analyze and minimize the contribution of dangerous GHG emissions from agriculture, forestry, and energy use through energy life cycle analysis performed as part of NEPA analysis; and (4) direct federal agencies to protect high conservation value lands and waters such as roadless areas,

intact watersheds and riparian areas, and native grasslands and other undisturbed areas as climate refugia for wildlife experiencing climate-forced migrations.

INTRODUCTION and CONTEXT

The Society for Conservation Biology is taking this opportunity to submit comments in response to the Notice of Availability, Draft Guidance, "Consideration of the Effects of Climate Change and Greenhouse Gas Emissions."

The Society for Conservation Biology is a global professional organization dedicated to promoting the scientific study of the phenomena that affect the maintenance, loss, and restoration of biological diversity. The Society's membership comprises a wide range of people interested in the conservation and study of biological diversity: leading scientists, editors of the peer reviewed journal, Conservation Biology, and the magazine, Conservation, among other publications, resource managers, educators, government and private conservation professionals, and students make up the more than 10,000 members worldwide.

We append to these comments SCB's statement of Climate Policy Principles, (www.conbio.org/resources/policy at Climate Change) that were presented to US and International policy leaders before the Copenhagen conference on scientific findings regarding our current understanding of climate change and its effects upon ecosystems. These contain detailed citations and explanations of the main points we make today as they apply to the NEPA and other duties of CEQ and the President.

To wit, over the past three years, peer-reviewed studies, several of which were published and summarized in our publications, have shown good and bad news. Good news is that mature forests often sequester carbon far more effectively than younger forests and that these forests should be protected so they can continue to play a pivotal role in the nation's efforts to address climate change mitigation. More good news was the conclusion by the Chairman of the Federal Energy Regulatory Commission that the U.S. does not need any new coal or nuclear electric power plants if our agencies make the right choices among available energy alternative policies so as to encourage cleaner and less risky sources of power. But very bad news arrived in that the loss of ice and other climate-induced changes is far more rapid and extensive than expected. Over the past year, studies have shown that forests and other ecosystems in vast areas of the planet are stressed by the heat, drought and other effects of climate change to such a point that many of these systems are threatened with collapse and conversion to systems that cannot provide the sequestration and other ecosystem services at anywhere near the levels they currently do.[1]

[1] Lewis S.L. et al. 2009. Increasing carbon storage in intact African tropical forests. Nature 457, 1003–1006. Phillips O.L. et al. 2009. Drought sensitivity of the Amazon rainforest. Science 323, 1344–1347.

Further, even as our scientific understanding of climate change evolves, we are still not immune from the unexpected. For example, as recently as March of this year, researchers discovered large emissions of methane from the East Siberian Arctic Shelf.[2] Until that time, detected methane contributions from Arctic permafrost had been 'negligible'.[3] As Dr. Martin Heimann of the Max Planck Institute of Germany commented, "But will this [release] persist into the future under sustained warming trends? We do not know."[4]

We have also learned that not only ground-level ozone, but excessive carbon in the atmosphere often inhibits the growth of plants and that it also inhibits the formation of protein in crops[5]. The result is that not only a large fraction of living species face seriously high risks of extinction but that our natural capacity to provide food and water for the people of the earth is shrinking.

Therefore we have already reached "dangerous levels of climate change" and dangerous levels of atmospheric greenhouse gases, and we must:

1) significantly reduce current levels of industrial, forestry, agricultural, and other anthropogenic greenhouse gases and climate forcing agents such as black soot as rapidly as possible – not just in emissions rates but in their net presence;
2) preserve and restore forests, especially mature and old-growth forests, and other climate mitigating ecosystems; and
3) adopt forestry, agricultural, and other natural resource management systems that optimize their natural sequestration potential to help reduce the level of greenhouse gases in the atmosphere as fast as possible.

In order to do this CEQ should use **both** its NEPA guidance authority and its other authorities. A prime example of its other authorities is its current mandate under the Executive

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[2] *See, e.g.*, Cornelia Dean, *Study Says Undersea Release of Methane Is Under Way*, The New York Times, March 5, 2010, at A15.
[3] *See, e.g.*, Cornelia Dean, *Study Says Undersea Release of Methane Is Under Way*, The New York Times, March 5, 2010, at A15.
[4] *See, e.g.*, Cornelia Dean, *Study Says Undersea Release of Methane Is Under Way*, The New York Times, March 5, 2010, at A15.
[5] *Science* 14 May 2010:
Vol. 328. no. 5980, pp. 899 - 903
DOI: 10.1126/science.1186440
Carbon Dioxide Enrichment Inhibits Nitrate Assimilation in Wheat and *Arabidopsis*
Arnold J. Bloom,* Martin Burger,† Jose Salvador Rubio Asensio, Asaph B. Cousins‡
The concentration of carbon dioxide in Earth's atmosphere may double by the end of the 21st century. The response of higher plants to a carbon dioxide doubling often includes a decline in their nitrogen status, but the reasons for this decline have been uncertain. We used five independent methods with wheat and *Arabidopsis* to show that atmospheric carbon dioxide enrichment inhibited the assimilation of nitrate into organic nitrogen compounds. This inhibition may be largely responsible for carbon dioxide acclimation, the decrease in photosynthesis and growth of plants conducting C_3 carbon fixation after long exposures (days to years) to carbon dioxide enrichment. These results suggest that the relative availability of soil ammonium and nitrate to most plants will become increasingly important in determining their productivity as well as their quality as food.

Order of October 5, 2009, to complete a set of recommendations for an Executive Branch Climate Adaptation program by October 5, 2010.

Our comments here are offered to help with both the proposed NEPA Climate Guidance and the development of the broader executive branch program to respond to climate change of which the Adaptation task force headed by CEQ and referenced in the President's Executive Order of last October is a part. Therefore, CEQ may not be able to incorporate some of our comments into its NEPA Climate guidance and we understand that.

We address these twin challenges in part by repeating some of our 2008 recommendations to the transition team in the addendum to these comments.

Summary of CEQ's proposed NEPA climate guidance

First, the draft Guidance suggests that if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO2-equivalent GHGs annually, then agencies should produce an assessment of such.[6] The draft Guidance further states the following:

> The reference point of 25,000 metric tons of direct CO2-equivalent GHG emissions may provide agencies with a useful indicator – rather than an absolute standard of insignificant effects -- for agencies' action-specific evaluation of GHG emissions and disclosure of that analysis in their NEPA documents. CEQ does not propose this reference point as an indicator of a level of GHG emissions that may significantly affect the quality of the human environment, as that term is used by NEPA, but notes that it serves as a minimum standard for reporting emissions under the Clean Air Act.[7]

Second, the draft Guidance makes clear that climate change considerations must be a "two way street" as in, the evaluation must be on both the reasonably foreseeable effect of the proposed action on climate change, and the reasonably foreseeable effects of climate change upon the proposed action.[8] As the science of climate change is dynamic, the draft guidance further states the following:

> Where climate change effects are likely to be important but there is significant uncertainty about such effects, it may also be useful to consider the effects of any proposed action or its alternatives against a baseline of reasonably foreseeable future conditions that is drawn as distinctly as the science of climate change effects will support.[9]

[6] The draft Guidance at 1-2.
[7] The draft Guidance at 3.
[8] The draft Guidance at 2-7.
[9] The draft Guidance at 7.

Third, the draft Guidance discusses the importance of assessing cumulative effects. It states, "Federal actions may cause effects on the human environment that are not significant environment effects, in isolation, but that are significant in the aggregate or that will lead to significant effects."[10] The purpose of cumulative effects analysis is to document agency consideration of the context and intensity of the effects of a proposal for agency action, particularly whether the action is related to other actions with individually insignificant but cumulatively significant impacts.[11]

Land Management

Finally, the draft Guidance explicitly states that this Guidance will not be applicable to Federal land and resource management actions, but does seek comment from the public on the most appropriate means of "assessing the GHG emissions and sequestration that are affected by Federal land and resource management decisions."[12] The draft Guidance explains that "Land management techniques, including changes in land use or land management strategies, lack any established Federal protocol for assessing their effect on atmospheric carbon release and sequestration at a landscape scale."[13]

The draft Guidance sets forth the following specific questions regarding land and resource management for public comment:

1. How should NEPA documents regarding long-range energy and resource management programs assess GHG emissions and climate change impacts?

2. What should be included in specific NEPA guidance for projects applicable to the federal land management agencies?

3. What should be included in specific NEPA guidance for land management planning applicable to the federal land management agencies?

4. Should CEQ recommend any particular protocols for assessing land management practices and their effect on carbon release and sequestration?

5. How should uncertainties associated with climate change projections and species and ecosystem responses be addressed in protocols for assessing land management practices?

6. How should NEPA analyses be tailored to address the beneficial effects on GHG emissions of Federal land and resource management actions?

7. Should CEQ provide guidance to agencies on determining whether GHG emissions are "significant" for NEPA purposes. At what level should GHG

[10] The draft Guidance at 9.
[11] 40 C.F.R. 1508.27(b)(7).
[12] The draft Guidance at 2
[13] The draft Guidance at 4.

emissions be considered to have significant cumulative effects. In this context, commenters may wish to consider the Supreme Court decision in *Massachusetts v. EPA*, 549 U.S. 497, 524 (2007).[14]

Comments on the Proposed Guidance

1. It would be a violation of NEPA for an agency to exclude an assessment of the climate change impact of its preferred land management action and of alternatives and CEQ should not and need not omit this large part of the equation from its climate guidance as it proposes to do here. (Details below)

2. Rather than set a threshold for analyzing carbon dioxide equivalent emissions, CEQ should direct agencies to assess the climate impacts of any proposed action, positive or negative, and alternatives for improving that impact, for it is in fact rare for actions that may increase climate change to have only climate impacts. The environmental impact of the life cycle of the proposed action --and not just of the project, but of its emissions, some of which will remain for hundreds of years in the atmosphere, and other effects -- must be assessed and the agency should be scoping ways not only to improve the negative impact but to restore and improve the environment and atmosphere themselves.

3. Include in this directive an all-encompassing definition of climate forcing agents or pre-cursor emissions, including but not limited to black soot, not just the classic GHGs alone.

4. Use clear and decisive directions for disclosure and assessment. Direct the agencies that they must disclose and analyze any emissions or degradation or reduction of sequestration or carbon sinks regardless of the level of emissions or loss of sequestration.

5. Recognize that the techniques for assessing climate impacts, both qualitative and quantitative are changing and improving in scale and over time, and encourage the use of those that are optimal for different kinds of actions while also encouraging the use of terms and figures that make comparison of options and the net aggregation of actions less difficult. Also require the use of these techniques now and their inclusion in the NEPA process.

6. Create a data-base of ecosystem and climate baseline information and use it across the landscape and waterscape and across agencies for NEPA, ESA and other analyses.

Alternatives and Mitigation

[14] The draft Guidance at 11-12.

Alternatives

As the Chairman of the Federal Energy Regulatory Commission (FERC) said almost a year ago, if we make the right choices we do not need to build any more traditional base-load power plants – one of the single largest sources of air and water pollution if one considers their full life cycles. The same is true for most other major sources of GHGs, from new Federal leases for fossil fuels to large clear cuts or deforestation or degradation of mature and old-growth forests – and it is the NEPA process that can reveal these better choices.

The guidance must focus mostly on achieving this ultimate purpose of NEPA – restoring a healthy environment by identifying and making the right choices and help Federal agencies understand options that no one officer or official is likely to know offhand. Thus, a clearinghouse of alternative measures, mitigation measures, and even legal duties and other reasons for choosing the no action alternative should be developed under CEQ's convening authority for this guidance and its agency-specific progeny. The relevant goal then of each agency, whether in programmatic impact assessments or in the cumulative effect of all of its actions each year is to reduce not just its GHG and land-use footprint and that of its partners, public and private, but to contribute to a net reduction in atmospheric greenhouse gases and a net increase in sequestration, climate resilience and adaptation. Most other environmental goods, like biodiversity, can also be consciously conserved and restored in the process. Achievements toward these goals, CEQ could point out, could be a standard part of each agency's Annual Performance Plans and Reports under the Government Performance and Results Act.

At least two major sources of methane, not to mention other pollution, have been affected by riders in recent years that would limit EPA's authority to regulate them. These are livestock-related methane and gas shale "fracking"[15], both of which often pollute the air and water, contributing to climate change as well as other problems. While only part of the EPA's authority – clean air or safe drinking water --may be limited in each instance, it is all the more important for NEPA to reveal that which EPA may be temporarily unable to regulate in order for the public and Congress to know the true cost of these preemptions and in order to avoid by other means pollutants that EPA cannot regulate directly.

NEPA requires consideration of alternatives even if the impacts are in and of themselves alone, not significant. [16] This is key for climate change given the fact that climate change impacts are made up largely of separate contributions, some of which alone could be described as relatively insignificant but not so when acting in concert with other stressors on ecosystems. It is also key in light of the ecosystem thresholds we are facing in that even a small additional stress added to an imbalance may tip a natural function past the point of its desirable state.

Mitigation

[15] A letter from the Energy and Environment Committee of the Consortium of Scientific Society Presidents was recently circulated warning of the considerable levels of methane emitted from the "fracking" process and calling for full life cycle analysis of any major new technology before subsidies or protections are awarded for that technology. SCB calls for similar life cycle analysis in its climate principles.

[16] 40 C.F.R. 1502.

Mitigation is often seen through too narrow a scope. Few decision-makers seem to have discussed the application of the most popular tool in climate discussions – offsets -- to the full extent and range of Federally – permitted actions. SCB recommends against using offsets in place of reductions at the source as a major component of public policy. That said, there is no reason why an agency that is confronted by an unavoidable impact should not assess the options and costs for more than 100% offsets as mitigation for GHG emissions due to a federal action. The holder of a permit to drill for fossil fuels that the agency believes (rightly or wrongly) cannot be denied under existing law could be asked to offset the full life cycle of his project's GHG impacts, for example, if that would not work a taking of property without compensation. The agency could also report to land acquisition authorities the cost of buying out the permittee. The holder of a permit to drill for fossil fuels that the agency believes (rightly or wrongly) cannot be denied under existing law could be asked to offset the full life cycle of his project's GHG impacts, for example, if that would not work a taking of property without compensation. The agency could also report to land acquisition authorities the cost of buying out the permittee.

CEQ should review the approaches taken by progressive states and nations to mitigation and alternatives before completing it next or final guidance for other ideas. Please see SCB's Comments on the National Environmental Policy Act (NEPA) Draft Guidance, "NEPA Mitigation and Monitoring."

Inadequate Temporal Scope

The draft Guidance states, "Analysis of emissions sources should take account of all phases and elements of the *proposed action over its expected life*, subject to reasonable limits based on feasibility and practicality." (emphasis added). It further states the following:

> Where an agency concludes that a discussion of cumulative effects of GHG emissions related to a proposed action is warranted to inform decision-making, CEQ recommends that the agency do so in a manner that meaningfully informs decision makers and the public regarding the potentially significant effects in the context of the proposal for agency action. This would most appropriately focus on an assessment of annual and cumulative emissions of the proposed action and the difference in emissions associated with alternative actions. The draft Guidance at 5.

The Society suggests that, although we fully support the consideration of cumulative effects, this formula will not result in the proper comprehensive answer. Rather than using the length of time of all the phases and elements of the proposed action over its expected life, the Guidance should also require the calculation to include the life of the pollutant or the traceable lifetime of the effect of the action on the climate, such as the sequestration lost through a large clear-cut when selective harvesting might have retained more carbon in the standing trees and soil. Moreover, guidance should be

provided to federal agencies to retain existing carbon stores in carbon dense systems such as mature and old-growth forests.

An analogous situation would be the building of a nuclear energy facility, which may have an expected life of 40-50 years. It would be disingenuous to base any cumulative effects analysis of the resultant nuclear waste based only on a 50 year life cycle analysis.

Answers to Specific Questions Posed by CEQ on Land Management

The draft Guidance explicitly states that this Guidance will not be applicable to Federal land and resource management actions, but does seek comment from the public on the most appropriate means of "assessing the GHG emissions and sequestration that are affected by Federal land and resource management decisions."[17] The draft Guidance explains that "Land management techniques, including changes in land use or land management strategies, lack any established Federal protocol for assessing their effect on atmospheric carbon release and sequestration at a landscape scale."[18] The draft Guidance sets forth the following specific questions regarding land and resource management for public comment:

1. How should NEPA documents regarding long-range energy and resource management programs assess GHG emissions and climate change impacts?

As SCB recommended in its transition document, the programmatic assessment process should be expanded in this regard and used to develop a comprehensive interagency program using all available laws and not just the Clean Air Act, to address all aspects of climate change domestic and international. Congress is flying blind without this comprehensive analysis of legal and technical capacity, using only faint or partial signals from the Administration rather than clear direction from a flight leader. Current domestic and international laws provide most of the authority needed to begin to robustly address climate change. Long range planning and programmatic assessment can reveal what Congress needs to do and what it should neither do itself; nor preempt the Administration from doing.

2. What should be included in specific NEPA guidance for projects applicable to the federal land management agencies?

The Guidance when reissued should include a summary of options or tools for measuring the relationships between land and water systems and climate change, and directions to include all operations, not just traditional land management. This should also include options and no

[17] The draft Guidance at 2
[18] The draft Guidance at 4.

action alternatives for all drivers including fossil fuel extraction, electric generation and transmission, as well as alternatives in each assessment where these are applicable.

On behalf of the Society for Conservation Biology, Dr. Dominick DellaSala, currently the President of our North America Section, testified before the House Subcommittee on National Parks, Forests & Public Lands Committee on Natural Resources, March 3, 2009 Hearing: "The Role of Federal Lands In Combating Climate Change."

We repeat here part of his testimony that goes directly to the issues raised by the proposed guidance and we draw upon his testimony and his sources later in our comments today. The End Notes of Dr. DellaSala's testimony are the citations to the scientific work cited and they are in Appendix II of this comment.

> Ecosystems, and most notably, forests are both affected by climate change and can be an integral part of the solution. Very simply, forests absorb CO_2 from the atmosphere and store the carbon from it in cellulose (wood) and soil. In this process, they convert CO_2 into oxygen that makes life possible. When forests are logged, they release a large portion of this stored carbon, which then contributes to the greenhouse effect.
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> Our nation's forests absorb the equivalent of about 10% of our carbon emissions from fossil fuels (Smith and Heath 2007, Depro 2007). Many studies have shown that old-growth forests accumulate carbon for centuries and that these forests are not neutral holders of carbon but continue to sequester large amounts of it even as they age from 300 to 800 years (Luyssaert et al. 2008). For instance, coastal old-growth forests in Oregon were found to store more carbon per acre than nearly all other forests on Earth (Smithwick et al. 2002) and they are rich in unique fish and wildlife species.
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> Studies also have shown that when old trees are cut down and replaced by younger ones there is a net reduction in carbon stores (Law et al. 2004, Depro et al. 2007). Much of this stored carbon is released to the atmosphere through loss of carbon in soils, decomposition and burning of slash left on site by loggers, and shipping and processing of wood products (Harmon et al. 1990, 2001). The relatively short shelf life of most wood products exacerbates these losses. The losses are neither trivial nor compensated by fast growing, young trees; it could take hundreds of years until the new forests store as much carbon as did the original old forest (Harmon 2001). Losses of stored carbon are particularly severe on industrial forest lands where timber harvest rotations are much shorter (40-100 years) than it takes for carbon stored in the original old forest to be replenished (Harmon 2001, Luyssaert et al. 2008).
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> One analysis found that a hypothetical ''no timber harvest'' scenario on public lands would result in an annual increase of 17–29 million metric tonnes (MMTC) of carbon captured or sequestered per year between 2010 and

2050—as much as a 43% increase over current sequestration levels on public lands (Depro et al. 2007). In contrast, moving to a more intense harvesting policy (similar to those of the 1980s) would result in annual carbon releases per year of 27–35 MMTC between 2010 and 2050 that otherwise would have been sequestered by no harvest (Depro et al. 2007). These losses would represent a substantial decline (50–80%) in anticipated carbon sequestration associated with existing timber harvest policies.[19]

In general, changing forestry and other land management practices on federal land represents one of the most powerful, and, quite frankly, least costly tools that the nation has in fighting climate change. Increasing carbon storage on and decreasing GHG emissions from federal lands is feasible across extensive areas and can be effectively implemented. To combat climate change on public lands, a fundamental shift from current forestry practices and guidance from CEQ is needed to: (1) retain existing stores of carbon in mature and old forests as "carbon banks" by protecting remaining old forests on federal lands; and (2) allow or help plantations and other intensively managed public forests optimize carbon stores by re-growing to older conditions (Harmon 2001). Moreover, to reduce emissions from logging on nonfederal lands, CEQ should direct federal agency divisions that influence state, private, and international forestry and agriculture to present cooperative and incentive-based plans to address climate change as federal lands should not be used as an offset for unsustainable practices elsewhere.

Finally, CEQ should direct federal agencies to conduct life cycle analysis of the effects of timber management practices on forest carbon pools requiring agencies to optimize carbon stores in the selection of alternatives pursuant to NEPA.

Forest Service Planning Rules and CEQ

The Forest Service ("FS") is required to prepare comprehensive, integrated land and resource management plans for national forests.[20] Currently FS is in the process of formulating a new Forest Management Planning Rule, to be completed by November 11, 2011.

The Forest Service has hosted nine regional roundtables, three national roundtables and a national science forum to discuss the proposed rule.[21] Climate Change was one of the six topics most discussed at the Forest Service National Roundtable held April 7 2010.[22] The High-Level Summary states the following issues:

Climate Change

[19] House Subcommittee on National Parks, Forests & Public Lands
Committee on Natural Resources, "The Role of Federal Lands In Combating Climate Change" at 4- 5, 109th Cong. (March 3 2010) (testimony of Dominick DellaSala, Ph.D. Chief scientist, National Center for Conservation Science & Policy).
[20] The Forest and Rangeland Renewable Resources Planning Act, 16 U.S.C. §§ 1600-1614 (1974).
[21] USDA Forest Service Public Events Schedule for the New Forest Management Planning Rule, *available at* http://www.fs.fed.us/news/2010/releases/02/development.shtml, *accessed* May 2010.
[22] First National Roundtable: Key Takeaways and High-Level Summary, *available at* http://fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5150494.pdf, *accessed* May 2010.

Participants acknowledged up front that this is an extremely challenging issue.

• To address climate change the rule will have to enable forests to anticipate and respond rapidly to changing conditions. Management discretion and accountability will be critical.

• The planning rule needs to address climate change proactively, but the danger of too much detail on an emerging issue now could be getting stuck with an unworkable, obsolete framework in the future. The rule needs to be able to anticipate the evolution of climate science as well as changing conditions on the ground.

• The rule needs to contain guidance regarding monitoring to detect changing conditions and identify major stressors on a variety of fronts (ecological, economic, ecosystem services, etc.).

• It is important to consider a nested or hierarchical approach that addresses this issue at a very broad scale and provides guidance at the local level.

• The rule should anticipate that the Forest Service may be called upon to manage its forests more proactively towards the goal of mitigation.[23]

The Society urges CEQ to work in tandem with the Forest Service by including much-needed direction in the Final Guidance, particularly as it relates to optimizing carbon stores from older forests and reducing net emissions from forestry and livestock management. The Forest Service is going to great lengths to formulate a sound Forest Management Planning Rule, and should have complementary guidance from CEQ and *vice versa.*

3. What should be included in specific NEPA guidance for land management planning applicable to the federal land management agencies?

CEQ should encourage Federal agencies, in considering alternatives and mitigation steps in the NEPA process and beyond, to adapt natural resource management by adopting a 3-Rs approach – Reduce existing stressors to ecosystems and increase Resilience and Resistance of species and ecosystems to climate change.

Reduce human-induced stressors - this is the single most important change in management direction to prepare forest ecosystems for the unavoidable impacts of climate change (SCB 2008). Forests, grasslands, watersheds and other ecosystems are under increased pressure from all the needs and demands we place on them. When ecosystems are stressed, they are less capable of adapting. Stressors of ecosystems include fragmentation by roads and

[23] Forest Service High-Level Summary at 3.

logging, spread of non-native invasive species by management activities (e.g., roads and livestock grazing facilitate expansion of certain weeds), unusually severe fires, high water loss (through evapotranspiration) from overstocked young stands (Moore et al. 2004) and water loss from stream diversions, and fossil fuel development. Domestic livestock and its associated commodity distribution chain contribute about 18% of GHG emissions (largely methane) globally (FAO 2006) and 8% nationally (EPA 2008). Notably, methane traps 20 times more heat than CO2 (EPA 2008). A particularly effective way to reduce livestock grazing contributions to increased GHGs as well as minimize detrimental effects on biological diversity and watershed function is to provide for the voluntary retirement of federal grazing permits. In addition, like forestry practices, CEQ can provide direction to federal agencies to conduct life cycle analysis on emissions from agriculture with agencies selecting alternatives that minimize methane releases.

Maintain resistant and resilient properties of ecosystems and species - in contrast to degraded lands, roadless areas, mature and old-growth forests, native prairie, and protected riparian areas, have many built-in mechanisms to allow them to withstand (Resistance) and rebound from (Resilience) natural disturbances. Such areas also will be more likely to resist or be resilient to climate change (Paine et al. 1998). CEQ could do two things to guide agencies in this regard: (1) direct federal agencies to plan for roadless areas and watersheds with low road densities as climate refugia and to achieve landscape and waterscape connectivity; and (2) provide direction on restoration projects aimed at building resistance and resilience through decommissioning of failing roads, thinning of young trees in previously managed and overstocked forests, and restoring stream morphology and function in watersheds heavily degraded by logging, livestock grazing, and other land uses.

Numerous studies demonstrate the importance of roadless areas to biological diversity (Strittholt and DellaSala 2001), drinking water (USFS 2000), and rural economies (USFS 2000). Roadless areas will become increasingly vital particularly in dry regions that depend on montane snow pack and as a connected landscape best capable of enabling fish and wildlife to migrate as the climate shifts.

As to thinning, millions of acres of old forests in the Pacific Northwest have been replaced with plantations that provide poor quality wildlife habitat (west of the Cascade Range, USGS 2002) or are now fire hazards (dry provinces, Odion et al. 2004). Treating these dense monocultures through variable-density thinning (with stops and gaps in thinning of trees to create structural diversity) is likely to help facilitate onset of older forest characteristics (USGS 2002), particularly if there is no net increase in the density of roads and soil damage is minimized. Thinning of small trees may reduce drought stress and fuel loads in dry forests (Brown et al. 2004), and lower fire risks where the number or severity of fires is expected to increase due to climate change (Westerling et al. 2006). However, there are tradeoffs. Fuel reduction methods typically release stored carbon from decomposition of slash left on site, burning of slash piles, transport and processing of biomass, and short shelf life of most wood products (Harmon 2001). The carbon released typically exceeds that of even the most severe fires as fires are relatively localized events compared to the extensive thinning efforts required to influence fire hazard. Thus, more carbon is removed by landscape-scale thinning than released

by fires (Mitchell et al. in press). Also, most of the carbon in a burned forests remains on site, is stored for long periods as charcoal deposits, and only slowly decomposes over decades.

Interest of federal agencies in thinning forests is increasing, but thinning of forests should target areas where it is most needed (e.g., wildland-urban interface and overly dense young stands), while reducing ecosystem stressors by protecting large trees, soils, and riparian areas and by restoring stream hydrology that has been altered by high road densities. Agencies should use the best science in determining where to apply thinning to any given location such that this action does not undermine either climate security or ecosystem health and that its application will comply with applicable laws.

National Forests and BLM lands, in general, play an integral role in maintaining ecosystem services whether in Oregon or throughout the nation. In particular, federal agencies have numerous regulations and laws that govern the use of ecosystem services, most notably multiple use and sustained yield principles. However, in practice ecosystem services are often pitted against one another (e.g., water and carbon storage vs. timber production). For instance, intact watersheds, mature and old-growth forests, and roadless areas act as biological reservoirs, gradually storing water and slowly releasing it over dry summer months (Moore et al. 2004). High levels of logging and road building in a watershed can lead to rapid runoff, diminished hydrological functions, and losses of water storage capacity that will only exacerbate water shortages particularly in regions dependent on snow pack. As snowpack is expected to decline markedly in the coming decades (Mote et al. 2005), protecting and restoring intact areas should be a priority of federal land use planning as such lands are critical to mitigating water losses and maintaining the full range of ecosystem services.

Landscape connectivity is another critical issue that must be actively addressed to help fish and wildlife adapt to the many effects of climate change. The Forest Service and BLM need direction to undertake an aggressive program of road decommissioning to reduce the number of roads that have a high likelihood of failure, especially given anticipated increases in the number and magnitude of storms. Not only will failed roads pose a risk to human safety and reduce the quantity and quality of water, but taxpayers will pay far more to repair damages than to prevent damages.

Notably, failure to take action on climate change can have significant economic impacts. For instance, according to recent economic studies conducted in western states, if GHG emissions are not reduced, states like Oregon will face some $3.3 billion in annual costs in the coming decades due to climate change impacts (http://uonews.uoregon.edu/files/pmr/uploads/OR-Fnl_Rpt.pdf). This loss represents an individual cost of about 4 percent of annual household income by 2020. Total annual costs would more than triple by 2080 if insufficient action is taken to reduce emissions. Researchers projected an increase in the number and severity of seasonal droughts and floods, higher air-conditioning costs to cope with higher temperatures, higher incidence of climate-associated health problems and deaths, and more wildfires. Similar losses are anticipated for New Mexico (http://uonews.uoregon.edu/files/pmr/uploads/NM-Fnl_Rpt.pdf) and Washington (http://uonews.uoregon.edu/files/pmr/uploads/WA-Fnl_Rpt.pdf). Federal lands can help mitigate these losses if these lands are managed with sequestration, biodiversity, and ecosystem services

(especially water) as a priority. CEQ should provide direction to federal agencies to conduct these types of cost-benefit analysis to avoid costly losses from delayed actions.

In sum, Federal agencies need clear direction to prioritize the preservation and restoration of ecological integrity of public lands so that these lands will continue to provide Americans with biological diversity and other sustainable ecosystem services such as abundant clean water, carbon sequestration and storage, air filtration, flood control, and recreation.

Alternatives and Mitigation Steps to Reduce GHG Emissions From Activities On Federal Lands:

Based on our above statements, we recommend that CEQ direct federal agencies to include the following 11 climate change planning principles:

(1). Require full assessment, disclosure, and mitigation of the contributions of federal actions to the drivers of climate change (GHG emissions) and full consideration of how climate change will impact the cost and efficacy of planned management actions - this should be required of all federal actions and should include comprehensive cost-benefit and GHG emission analyses of developing domestic energy sources on public lands so that the impacts of additional emissions are fully mitigated in NEPA. As an example, CEQ can direct federal agencies to treat CO2 and methane as a metric in NEPA.

(2). Provide clear guidance to BLM and Forest Service on fossil fuel leasing, including a moratorium on new leases pending full mitigation of GHG emissions and watershed impacts - . Leases for oil and gas development, in particular on BLM lands, have been handed out in record numbers in the last few years with little concern for environmental or atmospheric impacts. Even though oil and gas development on federal lands has been rampant, most of these leases have not yet been developed. Their future development will hamper any attempts to meet the 350 ppm safety net recommended by some of our most able scientists (e.g., Dr. James Hansen), in addition to decreasing the resilience of fish and wildlife populations and ecosystem services to climate change. Once new oil and gas wells and their associated pads and roads are developed, their emissions and habitat impacts will continue for decades to centuries. As the agency is indicating it will allow additional oil and gas leasing across large areas (http://www.blm.gov/pgdata/etc/medialib/blm/nm/programs/0/og_sale_notices_and/2008.Par.48580.File.dat/April162008_SaleNotice.pdf), on top of the extensive areas already leased, a full accounting of emissions and ecosystem degradation from already developed leases will allow agencies to implement mitigation and sequestration strategies. This is especially troubling given approvals by Agricultural Secretary Tom Vilsack in allowing drilling of methane wells, without consideration of GHG emissions, in inventoried roadless areas in Colorado.

(3). Require agencies to analyze both costs and benefits, including GHG emissions, of all types of energy, biofuels, agriculture and forestry. Guidance is needed for agencies to assess a full range of alternatives before approving any federal action that would lead to a net increase in GHG emissions and that all net increases in GHG emissions should be offset elsewhere by increases in sequestration.

(4). Prioritize preservation and restoration of biological diversity and other ecosystem services. On federal lands, priority ecosystem services largely include capture and storage of carbon, clean water, flood and drought abatement, biodiversity, and nutrient cycling. High priority actions by federal agencies should include protecting roadless areas and undeveloped watersheds and reducing existing stressors also by restoring degraded lands.

(5). Require that agencies conduct assessments of ecosystem services and biodiversity potential of all ecosystems in the context of climate change. This is essential in order to manage ecosystems for resistance and resilience to climate change.

(6). Require the Secretaries of Interior and Agriculture, in the October 2010 Adaptation Plan and as mitigation steps and offset pools for NEPA, to develop and extend a connected system of lands and waters as a climate change refuge. This connected system should be managed primarily for conservation of biological diversity, ecosystem services, and carbon sequestration while allowing for dispersal of native species. Protected areas are essential for maintaining viable fish and wildlife populations and high levels of genetic and species diversity, which would then be available to recolonize areas degraded by poor management or climate change. Roadless areas, riparian areas, old forests, and intact ecosystems are keys to this system.

(7). Institute a requirement to conduct analyses of landscape connectivity when large-scale energy developments, particularly placement of energy corridors, are proposed for public lands - to minimize fragmentation of fish and wildlife habitat.

(8). CEQ should work with the Forest Service as part of the National Forest Management Act proposed rule- making to ensure climate change recommendations such as these are included in the rule-making by the agency. CEQ should work with other agencies affecting land management to ensure that they both reveal climate effects via NEPA but also use their authorities fully to address climate change and request additional authorities and resources to improve their capacities to do so.

(9). Require federal agencies to modify all land-use plans to be compliant with NEPA and other environmental statutes in the context of climate change, including assessing cumulative effects of land-use practices (existing stressors) and climate change within the context of both mitigation and preparation.

(10). As part of adaptive management, require that federal agencies apply climate change and land-use models to address potential impacts of climate change and existing stressors – this includes modeling effects on vegetation, hydrology, snow pack, fish and wildlife, fire, and forest productivity with a temporal extent of decades to a century.

(11). Direct federal agencies to cooperate and coordinate federal management plans across jurisdictions and provide incentives for technology transfer and climate preparation and sequestration on nonfederal lands. Significant outreach to private landowners, including timber companies and ranchers, will be needed to implement the 3-R's strategy and reduce GHG emissions across broader planning scales.

4. Should CEQ recommend any particular protocols for assessing land management practices and their effect on carbon release and sequestration?

There are numerous protocols and while working to integrate their results in a common baseline, agencies should use the ones most suitable for their situations.

Rather than recommending a particular protocol, CEQ could work with DOE and EPA and USDA to provide guidance on the harmonization of the protocols that already exist, so that they can be applied to the contexts where they are best-suited. Project-level protocols for counting GHG emissions exist for forest activities like deforestation, aforestation, improved forest management, and protection of carbon dense forests. The Climate Action Reserve and the Voluntary Carbon Standard are two entities that have published several protocols. These rules differ with respect to defining the "baseline" or without-project scenario, which is something that would need to be standardized. Also, important differences exist for accounting carbon stored in wood projects, leakage of emissions, and risk/permanence assessments.

Other projects that would influence land-use GHG emissions are not well represented in the current carbon market standards. Grassland management and restoration, wildfire fuels management, grazing management, cropland management, wetland management, and other forms of land management do not have well-defined carbon protocols. CEQ could advance this work by bringing together experts to draft protocols that make use of the same approaches as the protocols mentioned above.

The need for monitoring in all of these cases will be very great, which also implies a high cost for monitoring. Land management GHG protocols should make use of remote sensing proxies wherever possible, in order to make GHG accounting easier. If remote sensing methods are not yet applicable to a particular type of project activity (grassland management, for example), initial will be necessary to determine if remote sensing data can be used to estimate carbon sequestration, and what kinds of field data are necessary to support that estimation.

5. How should uncertainties associated with climate change projections and species and ecosystem responses be addressed in protocols for assessing land management practices?

The foremost methods for addressing uncertainties in resource management are to hew to the precautionary principle, which has several different formulations and to use active adaptive management. Furthermore NEPA provides that agencies can recognize the need for new research and data, and take timely steps to secure that.

6. How should NEPA analyses be tailored to address the beneficial effects on GHG emissions of Federal land and resource management actions?

NEPA requires agencies to analyze the beneficial as well as adverse effects of proposed actions[24], not simply to repeat common assumptions about either. This means doing real literature and project reviews. These comprehensive reviews will reveal, for example, the GHG releases and impacts likely to result in the life cycle of a new natural gas-fired electric generating plant; from releases during extraction through pipeline leaks and incomplete combustion all the way through the life cycle to the Nitrous Oxide warming and ground level ozone effects. These assessments or impact statements should then compare that outcome of the agency's initially preferred option to the outcomes achieved by alternatives, such as better wheeling of power from existing sources, with a preference for renewables, rate adjustments, and improvements for a smarter transmission grid.

As noted above we are learning that climate change and its pollutant drivers have fewer and fewer of the "benefits" once projected by those offering earlier, less complete analysis.

Therefore the Guidelines may suggest interagency consultation and the use of independent science consultants from multiple disciplines for larger programs, new techniques, or complex assessments.

7. Should CEQ provide guidance to agencies on determining whether GHG emissions are "significant" for NEPA purposes. At what level should GHG emissions be considered to have significant cumulative effects. In this context, commenters may wish to consider the Supreme Court decision in *Massachusetts v. EPA*, 549 U.S. 497, 524 (2007).[25]

Thresholds in this case miss the point of NEPA. A very small level of emissions might be addressed well enough through mitigation and offsets to achieve a Finding of No Significant

[24] 40 C.F.R. § 1508.8(b).
[25] The draft Guidance at 11-12.

Impact (FONSI) (so as to avoid an EIS) unless the cumulative impact of Federal Actions were to exceed that projected at the time. But unlike regulatory levels set by Congress for the Clean Air Act, NEPA asks that the Executive Branch keep its eyes open for *any* threat so that they and the public know what we are about to do before we do it on a continuing basis in order to fulfill the restorative purposes of NEPA[26] and "eliminate damage to the environment"[27]

Finally, if CEQ does recommend a threshold, it should not only be annual or average annual. It should be for actual projected releases or impacts, peak releases and releases over the lifetime of the action or the agent that is released or created by it. It should also include projected annual releases.

[26] 40 C.F.R. §. 1500.2(e)-(f), emphasis added.
[27] 42 U.S.C. § 4321.

Thank you for considering our comments.

Sincerely,

John M. Fitzgerald, J.D., Policy Director
Society for Conservation Biology

Dominick DellaSala, Ph.D.
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APPENDIX I

SCB's Transition Recommendations on NEPA and Climate Policy Bear Repeating Here:

Many of our 2008 transition "Recommendations for actions by the Obama Administration and the Congress…" are relevant **to this Guidance and to the CEQ-led Adaptation Program,** for example to --

Strengthen Fundamental Environmental Policies and Practices

Implementation of our nation's fundamental environmental laws, such as the National Environmental Policy Act (NEPA), National Forest Management Act (NFMA), and Endangered Species Act (ESA), would benefit from new rule making and direction to ensure scientific integrity in policy decisions affecting natural resources. At the outset, the new Administration should order an across the board review of recent natural resource decisions by the outgoing Administration to correct and curtail the effects of those not based on the best available science.

National Environmental Policy Act (NEPA)

Implementation of the Act would benefit from the following actions by the Council on Environmental Quality (CEQ).

- Issue guidance to all federal agencies on rigorous, scientifically credible analysis of the effects of climate change and the effects of alternative proposed programs, projects, and other actions in mitigating net greenhouse gas emissions and adapting to climate change within the context of NEPA compliance.
- Reestablish NEPA at the programmatic level to facilitate early assessment of impacts and alternatives that can improve the ability of science to inform decision-making.
- Initiate a government-wide review of conflict of interest and ethics policies that pertain to federal agencies' selection of contractors for preparation of environmental impact statements and exclude any contractors that have conflicts of interest, financial or otherwise.
- Review the categorical exclusions of resource management, transportation, and other agencies to ensure that the only proposed federal actions excluded from documented analysis are those that would not, individually or cumulatively, have significant environmental effects.
- Consider expanding the scope of NEPA guidance and expanding cooperation with states to capture earlier in the process actions that eventually will entail Federal actions or support, such as adding sources for interstate electric supplies in order to identify and better control significant sources of greenhouse gas emissions.

… We recommend that NOAA be directed to evaluate biological and economic impacts related to changes in biological diversity, alteration of species' habitats, introduction of non-native species, and ecosystem resilience when developing risk assessments… We also recommend that the administration reevaluate the exclusion of EPA decisions and rulemaking from NEPA review. This exclusion is often incompatible with the goals of

NEPA and reduces the transparency of government decision-making.

In its convening authority and its Adaptation Program, CEQ can take the lead in implementing many of the Recommendations on Climate below:

ENHANCE THE FEDERAL ROLE IN CONSERVING BIOLOGICAL DIVERSITY AND ADDRESSING CLIMATE CHANGE ADAPTATION AND MITIGATION

Global climate change, which is triggering environmental, social, and economic disruptions, is perhaps the greatest challenge the President and the nation will face in conserving natural resources. Thus, we recommend that the President elevate this issue as a top priority not only for the environment but with regard to its implications for national and economic security and human health. This elevation could be accomplished in part through a national summit, attended by the President, his advisors, agency heads, congressional leaders, leaders of the associations of governors and mayors, scientific and legal experts, and possibly heads of state from Mexico, Canada, and other countries to establish a process for responding to climate change in cooperation with state and local governments. We further recommend the following actions:

Recommended actions

- Form an interagency team charged with developing options for use of and modest amendments to existing laws, including but not limited to NEPA, Clean Air Act, ESA, and the Internal Revenue Code, to minimize net greenhouse gas emissions and maximize the ability of ecosystems to sequester and convert greenhouse gases.
- Aggressively use existing authorities to address both the drivers and consequences of climate change, such as review under NEPA and full consideration under the Endangered Species Act
- Issue an Executive Order on climate change with a timetable for domestic and international action that comprehensively incorporates adaptation, sequestration, and mitigation strategies into the greatest possible proportion of plans for federal projects and programs.
- Instruct each agency to assess its authorities and to recommend budgetary and operational changes to enhance its role in addressing climate change. Further instruct each agency to work with Congress to incorporate conservation of biological diversity and mitigation of and adaptation to climate change into all major stimulus, stabilization, and other economic support measures. For example, require beneficiaries of emergency financial support to complete environmental audits and publicly disclose those findings and actions taken as a result on an annual basis.
- Require that CEQ and EPA develop and implement a programmatic assessment process for proposed energy, transportation, and agriculture developments and other climate-related actions in consultation with the Department of Energy, National Aeronautics and Space Administration, Department of Agriculture, Department of Transportation, National Oceanic and Atmospheric Administration, scientific societies, scientific

research centers, and the National Academy of Sciences.

- Develop, in consultation with like-minded governments, a new strategic approach to international negotiations that is not limited to the scope and instruments advanced by the previous administration.

Cohesive management policies for public lands and waters are increasingly important as climate changes, urban and suburban areas expand, and pressures for energy development on public lands increase. We recommend establishment of a strong, unified standard for resource management on lands managed by the Forest Service and Bureau of Land Management and a similar standard for other federal primary purpose lands as exemplified by the actions below. We also recommend working with state governments to address different impacts, such as sea-level rise in coastal states.

Forest Service

- Implement ecological sustainability [as defined by the USFS Committee of Scientists Report (1999)[2]] and principles for adaptation to climate change on all national forests.
- Suspend road building in inventoried roadless areas while a consistent policy on roadless areas is developed, and in the meantime restore the 2001 Roadless Conservation Rule.
- Suspend logging of mature and old-growth forests in the Pacific Northwest while new conservation strategies that build on the Northwest Forest Plan are examined.
- Conduct assessments of carbon sequestration potential, develop management plans for long-term sequestration, and manage ecosystems to build resistance and resilience to climate change.
- Analyze costs and benefits of alternative types of biofuels, agriculture, and silviculture, including their contributions to controlling greenhouse gases.
- Mitigate fragmentation of wildlife habitat by energy corridors before projects are authorized.

Bureau of Land Management

- Conduct assessments of carbon sequestration potential, develop management plans for long-term sequestration, and manage ecosystems to build resistance and resilience to climate change.
- Analyze costs and benefits of biofuel utilization, including net effects on the levels of atmospheric greenhouse gases.
- To the extent possible, promulgate regulations defining BLM's sustained yield mandates to ensure conservation of biological diversity and work with Congress to codify into law strong wildlife-protection standards such as those found in NFMA's implementing regulations promulgated in 1982.
- Require assessment of potential future impacts from energy development on natural resources before issuing leases. Refrain from issuing new oil and gas leases on public lands until landscape-level management plans are completed and cumulative impacts and contributions to climate change are mitigated.
- Correct or suspend resource allocations based on decisions or recovery plans that are likely to be reversed. For example, issue a Supplemental Environmental Impact Statement for the BLM Western Oregon Plan Revision requiring the agency to abide

by the Northwest Forest Plan.

• Provide full funding for the National Landscape Conservation System and consider new designations of national monuments and similar areas to expand the system in the face of climate change. Conduct an inventory of roadless areas – similar to that on national forests – and include these lands in an expanded system.

National Wildlife Refuge System

• Participate in developing a national strategy for adaptation to and mitigation of climate change

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8

and issue other guidance to maintain the viability of the nation's native species.

• Review and revise existing initiatives on non-native invasive species with the aim of preventing the establishment of new non-native invasives and reducing the impacts of existing populations of non-native invasives in the refuge system and beyond.

Landscape-Level Conservation Across Jurisdictions

The Secretaries of Interior and Agriculture should plan and begin to assemble a connected system of lands and waters (public and appropriate private areas) to be managed for conservation of biological diversity while working to reduce barriers to dispersal of native species. In this process, create incentives for private land stewardship to provide corridors for native species. In developing this process they should consider the Natura 2000 European Network of Biodiversity Areas. For western lands we recommend that the lead agencies consider the recommendations of the Western Landscapes Conservation Series of Northern Arizona University (http://westernconservation.org/).

APPENDIX II

End notes to Dr. Dominick DellaSala's testimony before the House Subcommittee on National Parks, Forests & Public Lands
Committee on Natural Resources
March 3, 2009 Hearing:
"The Role of Federal Lands In Combating Climate Change"

At the time Dr. DellaSala testified, he was Chief Scientist at the National Center for Conservation Science & Policy, testifying on behalf of SCB as well. These End Notes are the references he used then. They also support the citations in our above comments filed today concerning CEQ's' proposed Guidance.

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