United States Department of the Interior
NATIONAL PARK SERVICE
Air Resources Division
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TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

August 14, 2009

N3615 (2350)

Dr. Holly Stallworth
Designated Federal Officer
EPA Science Advisory Board (1400F)
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: FR Doc. E9-14712

Dear Dr. Stallworth:

These comments are submitted on behalf of the National Park Service (NPS) in response to the U.S. Environmental Protection Agency's (EPA) June 23, 2009, Federal Register Notice for review and comment of the Risk and Exposure Assessment for Review of the Secondary National Ambient Air Quality Standards (NAAQS) for Oxides of Nitrogen and Oxides of Sulfur: Second Draft (EPA-452/P-09-004a). These comments reinforce and supplement comments provided at the July 22-23, 2009, Clean Air Scientific Advisory Committee Review Panel's meeting in Research Triangle Park, North Carolina.

NPS commends EPA's progress to date to develop ecologically-relevant secondary National Ambient Air Quality Standards for Nitrogen Oxides (NO_x) and Sulfur Oxides (SO_x) to protect sensitive resources. NPS encourages EPA to continue efforts to develop secondary standards that link ecological indicators of ecosystem impacts to levels of atmospheric deposition of sulfate and total (reactive plus reduced) nitrogen. NPS urges EPA to consider flux for the form of the secondary standards, as flux is a "property indicative of the presence of the pollutant in the ambient air," and is more closely linked to ecosystem effects than ambient air concentrations.

We support EPA's innovative approach to describe the secondary standard in a conceptual model that identifies the atmospheric and ecosystem parameters that contribute to resource sensitivity and uses site-specific values of the parameters to determine levels of deposition that are protective of the specific resources. This approach provides flexibility to set deposition levels that protect the most sensitive ecosystems while allowing higher levels of deposition where resources are less sensitive.

EPA has clearly documented adverse effects of aquatic and terrestrial acidification and aquatic and terrestrial nutrient enrichment caused by nitrogen and sulfur deposition resulting from current levels of sulfur dioxide and nitrogen dioxide. However, since no areas in the U.S. currently exceed the secondary standards for those pollutants, it is evident that the standards do not provide the requisite level of protection to many ecosystems. If EPA does not have sufficient time to propose a significant revision to the current secondary standards, we recommend that EPA revoke the current secondary standards while proceeding to develop more ecologically relevant and protective secondary standards. Revoking the current secondary standards would be an acknowledgement that the standards are clearly inappropriate in form and ineffectual for their intended purpose of ecosystem protection. We agree with CASAC that EPA should adopt a fast-track approach to complete the Policy Assessment and associated rulemaking in the next year or so.

CASAC has asked that EPA provide a broader regional base to support the case studies. EPA in the Risk and Exposure Assessment (REA) discusses regionalization of the Adirondack Lakes case study, but states that the Shenandoah case study for stream acidification cannot be extrapolated to a larger data set. In fact, the Shenandoah case study can be regionalized because the Southern Appalachian regional assessment[1, 2] that is cited in EPA's Integrated Science Assessment (ISA) included Shenandoah streams and applied the MAGIC model to project stream water acidification using similar methods as used in EPA's Shenandoah case study. The ISA and the Southern Appalachian regional assessment used the same stream ANC and bedrock geology classifications to define stream sensitivity to acidification. More recently the USDA Forest Service applied the MAGIC model in a critical loads assessment for stream acidification in North Carolina, Tennessee, and South Carolina[3]; these streams can also be used to regionalize the Shenandoah case study results. We recommend that EPA incorporate maps from the regional assessments in the Adirondacks and Southern Appalachians to demonstrate that the resources that are sensitive to aquatic acidification occur over a broad area, not just the area of the case studies.

The case for nitrogen enrichment of western alpine lakes is also strong, as referenced in the ISA[4,5,6]. A critical loads assessment is currently underway that will link watershed and basin

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[1] Sullivan TJ; Cosby BJ; Herlihy AT; Webb JR; Bulger AJ; Snyder KU; Brewer P; Gilbert EH; Moore DL. (2004). Regional model projections of future effects of sulfur and nitrogen deposition on streams in the southern Appalachian Mountains. Water Resour Res, 40, W02101 doi:02110.01029/02003WR001998.

[2] Sullivan TJ; Webb JR; Snyder KU; Herlihy AT; Cosby BJ. (2007b). Spatial distribution of acid-sensitive and acid-impacted streams in relation to watershed features in the southern Appalachian mountains. Water Air Soil Pollut, 182, 57-71.

[3] Sullivan TJ; Cosby BJ; Snyder KU; Herlihy AT; Jackson, B. (2007). Model-Based Assessment of the Effects of Acidic Deposition on Sensitive Watershed Resources in the National Forests of North Carolina, Tennessee, and South Carolina. Final Report prepared for the USDA Forest Service, 160A Zillicoa Street, Asheville, NC 28804.

[4] Baron JS; Rueth HM; Wolfe AM; Nydick KR; Allstott EJ; Minear JT; Moraska B. (2000). Ecosystem responses to nitrogen deposition in the Colorado Front Range. Ecosystems, 3, 352-368.

[5] Baron JS. (2006). Hindcasting nitrogen deposition to determine ecological critical load. Ecol Appl, 16, 433-439.Saros JE; Interlandi SJ; Wolfe AP; Engstrom DR. (2003). Recent changes in the diatom community structure of lakes in the Beartooth Mountain Range, USA. Arct Antarct Alp Res, 35, 18-23.

[6] Saros JE; Interlandi SJ; Wolfe AP; Engstrom DR. (2003). Recent changes in the diatom community structure of lakes in the Beartooth Mountain Range, USA. Arct Antarct Alp Res, 35, 18-23.

characteristics to lake sensitivity to nitrogen and will provide further evidence that the case study results can be applied regionally to additional western alpine lakes.

Negative effects from nutrient enrichment have also been well-documented in the ISA for sensitive terrestrial ecosystems. And while elevated nitrogen deposition can increase productivity in a managed forest stand or cropland, this represents a "single species" type of management and in no way contributes to a functioning, diverse natural ecosystem. In natural systems excess nitrogen has been shown to give a competitive advantage to certain plant species, including invasive species, over native species, thereby changing ecosystem dynamics in forests, grasslands, alpine, and other areas.

We agree with CASAC that EPA should provide more discussion of ecosystem services. Especially important are those ecosystem services that cannot be quantified. For instance, red spruce is a source of timber (which can be quantified) in the Northeast. At high elevation in the Southern Appalachians red spruce is not a timber resource, but has intrinsic value as part of a unique ecosystem at the southern edge of its spatial distribution and is stressed not only by acid deposition but also by changing climatic factors. These ecosystem services need to be emphasized even if they cannot be quantified. Similarly a healthy and diverse habitat for aquatic biota is an important ecosystem service that is more difficult to quantify than the monetary benefits of recreational fishing in those streams and lakes.

On a final note, a lot has been said about uncertainties in linking atmospheric pollutant concentrations to ecological indicators and ecosystem services. There will always be uncertainties when dealing with complex, dynamic natural ecosystems. However, we urge EPA to focus on the one thing that is certain: the current secondary standards for NO_x and SO_x are inadequate to protect ecological resources and public welfare.

We appreciate this opportunity to comment and would like to continue to work with EPA to develop ecologically relevant and protective secondary standards for NO_x and SO_x.

Sincerely,

Christine L. Shaver
Chef, Air Resources Division