New Tools for Building the Future of Ecosystem Management

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I want to take my cue from Secretary Wheeler's remarks yesterday stating that there is no support for traditional, large-scale regional planning. Although people have advocated such planning, currently it is not even on the desks of committees that would entertain such legislation.

I also want to follow up on Professor Joe Sax's comments—with which I thoroughly agree—about how the Endangered Species Act ultimately led us to adopt a broader planning and ecosystem approach. If we had tried to follow this approach from the onset, of course, it never would have worked.

Today I want to focus on our attempts to build a bridge between scientific ecosystem knowledge on the one hand, and tough policymaking that comes to real conclusions on the other. Although we are supposed to, we do not seem to want to build a bridge between the two ends.

We do have scientific advisory committees. We have task forces that generate information. We also have policymakers who are trying to make quick decisions. Information flows mainly through depositions, testimony and hearings. We have not done a good job of facilitating the information flow. In part, this is due to a lack of professional planning. Although I do not think top-down regional planning is a good idea, I think we are paying the price for not having good scientific survey material and at least a semblance of a framework for transferring information from one side to the other. I have developed a few questions to pinpoint where we are today.

Can we build natural-community conservation plans or habitat plans that will get us out of the Endangered Species Act train-wreck crisis that Professor Sax mentioned? I think the answer is yes. The

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3. Id.
Coastal Sage Scrub Habitat Plan is regarded as a success, although yesterday we did not get a chance to discuss the strengths and weaknesses of that plan. I think it is a success, but it is a single target plan. There are five species involved, but in my opinion it is a gnat catcher plan, and other species ride along on the coattails. It is what I call a single-layer plan, with a vegetation map that stands in for the ecosystem. There is no watershed analysis. There is no hydrologic modeling. There are no migratory species included. The plan posits that if we save the scrub habitat, we will probably save the gnat catcher. And that is good. I am not complaining, because you have to start somewhere.

My second question is, are we ready to build multi-target, multi-layer, model-based plans that will address the Bay Delta, North Coast Salmon, the Columbia River, and the Mono Lake type of issue? We had an excellent discussion yesterday at the break-out session on the enormous complexity of Mono Lake. I think it is a good example to hold up as a model. However, I do not think we have the planning apparatus to handle the next Mono Lake type problem that arises. So my answer to, "are we ready to build multi-target plans?" is no. Are we almost ready? No. I think we are far from having that kind of science-based planning capability.

My third question is, can the scientific community quickly assess the parameters of new planning areas, i.e., identify the key species, define the ecosystem’s boundaries, select the correct indicators and monitoring parameters, and set standards for the right issues at the right level and maintain these standards for one hundred years? And again the answer is, no. I fully understand private landowners’—or public land managers’—need for some certainty. I think we need to offer some certainty to get their support. However, even if scientists could work harder and faster, they would not be able to provide that type of assurance. The lay public visualizes an army of ecologists that is collecting information and putting it all together. The reality is that typically only a few persons with Masters theses work on a plan.

Can the scientific community quickly assess ecological situations? The answer is no. Further, the new information that scientists gather becomes a significant addition to our existing stock of knowledge, and often forces abrupt changes. At Tahoe, we used to think the eutrophication was nitrogen driven in terms of our ecosystem plan. New information led us to believe phosphorus was the driving force, and we began to change our plans accordingly. Now we have returned to thinking nitrogen is the key element. What role each element plays in

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the ecosystem has enormous implications. It is important to determine whether it is air pollution and transportation, or housing development that is causing the region's problems. The information we collect can effect great changes in our ecosystem plans.

To understand these types of changes, it is useful to think of diagrams that show the energy flows and food chains in an ecosystem. If scientists discover a new species that is essential to the food chain of the target animal, and this species is dependent on a larger area, the ecosystem's boundaries will need to be redrawn. This change could impact a new landowner, or even another city or county. Thus the assurances we would like to provide fall apart. Potentially, they can fall apart dramatically. I wish we could feel a certain assurance that we are headed in the right direction with these plans, but we would be fooling ourselves.

A fourth question is whether the states and the Federal Government are setting up surveys and long-term ecological monitoring and vegetation mapping. Such activities would strengthen our ability to respond to the next crisis. Again, my answer, unfortunately, is no. Some years ago, Congress debated creating a National Biological Survey. Al Gore supported this idea. Today we have a Biological Service, but there is a big difference between a service and a survey. A survey involves collecting a lot of information in advance and giving it to people free of charge so they are prepared and can work to avert crises. A service is like a fire station; biologists are dragged from one crisis to another, making instant assessments. They are dedicated people who work hard. However, a service does not follow a get-ahead-of-the-game strategy.

The National Science Foundation once had a program for long-term ecological research. It started a couple of research programs—one in Florida, one out here—but the funding dried up. We no longer have a National Science Foundation program that could provide the kind of information Charles Goldman developed for Lake Tahoe: a twenty-year record that gives one a sense of what is going on in the ecosystem. The U.S. is no longer building that kind of capacity. Nor are we learning lessons from other countries that we could apply to our planning efforts. We are not dedicating resources to information production, interpretation, and synthesis either.

Australia has an organization that combines the geologic survey, the soil survey, and timber harvest map production. This organization conducts assessments of regions that do not expect a train-wreck im-

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5. For a summary of Professor Goldman's education, research, and publications, see his internet page in the University of California at Davis, Division of Environmental Studies (visited Sept. 21, 1997) at <http://www.des.ucdavis.edu/faculty/GOLDMAN.HTM>.
minently. When something does happen in the region, a body of information is available to assist the planning process. Australia has employed its strategy for gathering and assessing information and building plans for twenty years. This could be a good model for the U.S. to follow. Canada likewise has a good system—the Canadian Map Service. Thus, there are several countries whose example the U.S. could follow to improve its own program.

Who should pay for the current paucity of knowledge? We return to the questions: who is to pay to enlarge our base of knowledge and who will bear the cost of adjusting to changes necessitated by that newly acquired knowledge? Should the public bear the burden of proof of showing the need to collect new information? As lawyers, you know the importance of that burden. I think the public should not pick up the whole tab. However, neither should the landowner. As Professor Fred Bosselman discussed yesterday, planners need to develop a new range of tools that enable us to assure the landowner that no more land will be exacted, and that no more money will be exacted, although the landowner may be asked to change her land-use practices or adjust to a future change in the timing of water releases. We need to expand our tool kit of options so we can adopt a position somewhere between promising to absolve a landowner completely from any future costs and saddling the landowner with the entire burden.

Are we using our national advantage in information technology to help solve some of these environmental planning problems? The Bay Area is the global center for database development, for web development, and for information technology. Yet the Bay Conservation and Development Commission only recently replaced its single computer that was the size of a refrigerator. Further, we do not use teleconferencing. We do not use the web.

I dream of the day when everyone from high school students to federal agency staff can view digital documents, engage in instant review and commentary, and access maps, the Geographic Information System, and other imagery. Such technology already exists. Are we

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applying it? The answer is no, we are not using the Bay Area's leadership to our advantage—although we ought to be.

Finally, are we on the right track in terms of using habitat plans to develop rationally-based, scientifically-based, ecosystem-based planning? The answer is, of course, absolutely yes. When you are adrift in the ocean clinging to a little life-ring that says NEPA and CEQA on it, and the canvas is coming off, and it is breaking apart, when this Endangered Species Act life-ring comes by, you grab on to it. If the Habitat Plan rowboat comes by, you jump in. You do not complain about the fact that the rowboat does not serve good meals or have a dance hall and does not go very fast, but you use what you have.

We are on the right track, but at the same time we have to recognize the limitations of this rowboat and keep working on the regional and larger-than-local planning structures that can provide a long-term regulatory mechanism, which reduces transaction costs and helps us develop better plans.

As Secretary Wheeler said yesterday, this can seem impossible. At the same time, I noticed Dwight Steel, who was a leader in setting up the Keep Tahoe Blue campaign, sitting in the audience. I am sure that when Dwight started working at Tahoe people thought his idea was crazy and that there was no way one could ever have a regional plan. Who could believe Nevada and California would join in an inter-state compact? Although it seemed impossible, it happened. Sitting next to him is Sylvia McLaughlin, one of the founders of the Save the Bay movement. Again, I think it would be fair to say that when Ms. McLaughlin began her campaign, it seemed like a hopeless task.

I think we should take our spirit from them and others like them in the audience. We need to persevere and continue trying to build a structure that will make this process work better in the future. Thank you.

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res.ca.gov>. See also Robert Twiss, Environmental Planning & the Web (visited Sept. 21, 1997) <http://www.regis.berkeley.edu/papers/aep.html>.