

CONSERVATION PERSPECTIVES

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Good morning, it is a pleasure to be here. I would like to talk about change and about common ways of thinking. Step back for a second and recognize that we are nearing the end of the twentieth century. Look back in your mind over the last 50 years. The world has seen changes that most of us can't really understand: political change, from the close of World War II to the end of the Soviet Union, to political strife and war in many places around the world; and environmental change, from understanding the consequences of nuclear war and weapons from Hiroshima, to looking at problems like the ozone hole and global climate change.

In some sense, in the United States, people's views have shifted from a sense of security that we could do anything, and succeed at anything, to one of fundamental concern about the fragility of life on earth. We are interested in environmental security. We want to be sure that we, our children and our children's children will have a world worth living in; with functioning and healthy ecosystems that we can care about, stable jobs, and stable communities. This is what ecosystem management is about. It is about looking toward the future at the end of the twentieth century.

I know we are not here to talk about the scale of the entire globe and I do not pretend to be knowledgeable about the entire globe. I would like for us to reflect for a minute on the changes in our thinking that ecosystem management brings to us. Ecosystem management has been touted as a paradigm shift, a fundamental change in our way of thinking and our way of doing business. Although changes are occurring incrementally, these changes are happening in many people's minds and many places.

People are changing their goals for the ecosystems in which they work and live. Our focus increasingly is on ecological health and the integrity of those systems. Our understanding about how ecosystems work is dramatically different. We have shifted from a perspective of balance to a perspective of dynamic change, for example. Our perspective of the relationship between humans and nature is different. We are changing where we work and recognizing that we can not just stay inside our own little boundaries and play our game alone any longer. Our scale of interests and the scope of the questions that we ask are different.

I would argue that for ecosystem management to succeed, all of us must think about these changes and understand our role in them. This morning, I will talk about the Nature Conservancy's perspective on ecosystem management. We do not use ecosystem management as language in the Nature Conservancy, so I will tell you about the way we own and manage land, and our

ecological approach to managing land. In the short time I have, I can not give you much depth. This will be a thumbnail sketch only. I would like to give you an introduction to our ecosystem approach and then talk briefly about some things that I think ecosystem management is, and isn't, and some of the common challenges we face.

The Nature Conservancy has not had a paradigm shift in its goals. We are a private conservation organization that has been in the business of biodiversity conservation for over 40 years. It's not new to us to think about ecological health or protecting biodiversity in perpetuity. We are, however, in the same process as many other people and organizations undergoing a shift in our thinking about strategy: how do we accomplish these goals, what options do we have, and what will it take to succeed?

Our mission is to conserve plants, animals and natural communities that represent life on earth by protecting the lands and waters that they need to survive. Our goal is to do this in perpetuity. We are already trying to think about it over a long time scale.

As Washington State University President Smith said this morning, sometimes it is easier to tell things in the form of a story. I would like to tell you a little history of the Nature Conservancy's thinking, how it has changed and why this brings us toward a system approach. Historically, we started our work with an inventory. We helped state and federal agencies and local individuals to set up inventories of biodiversity in states all over the country, in 13 countries in Latin America and 5 Canadian provinces. These programs are now called natural heritage inventories and many of them are part of state government. We started with the premise that knowing what species you care about protecting would inform sound decision-making. We tried to develop a knowledge base so that we could identify, for our own practices, where we should work to protect biodiversity. We used these inventories and this information system to establish our own goals about where we should work, usually looking across a state and asking, "Where are the important places to protect biodiversity within this state?" This helped us target where we worked.

Today we are looking at broader geographic scales, across state or other political boundaries. For example, we are working with the Great Lake states and Canadian provinces to build an information data base that contains locational information for rare species and communities for the entire Great Lakes Basin. We will help put that regional information together to make decisions about how we should manage for biodiversity in that Basin.

We are also looking at different levels of biodiversity. Our historic focus had been species and communities. Now we also look at higher levels of biological diversity, particularly in international settings that are species-rich but data-poor. Here, we inventory biodiversity at a higher level, such as vegetation type, using both remote-sensing and field investigations.

Our thinking about what is necessary for conservation has also changed. To oversimplify it, we used to think that if we bought a nature preserve it was protected. It was safe for perpetuity and you could walk away and nature would take care of it. Well, I don't think anyone here believes that is true. As we started to own many nature preserves, we had to think about what we needed to do to manage them. We frequently found out that simply putting up fences really had nothing to do with management. Instead we had to look at the ecological processes that were essential to keeping the species and communities alive on those sites.

Moreover, we had to look at the fact that we often had not designed the preserve at all. We had just acquired a piece of land that had a rare plant or community on it that we were concerned about. Often the ecological processes essential to maintaining that species or community were not on the site or were difficult to reintroduce to that site. As a result, we have circumstances, such as in the Albany Pine Barrens in New York state, where we own a parcel of land that has pine barrens on it and populations of the federally listed Karner blue butterfly. The Karner blue butterfly feeds on lupine. Lupine grows between the pines when there is fire frequently enough for there to be openings. Now we are in the circumstance of needing to reintroduce fire, in an ecologically sound way, in a context where the neighbors on one side are a nursing home, a condominium complex is on the other, and the New York thruway is not very far away.

We have learned a lot about neighbors. Not only have we learned that neighbors don't really like smoke, except from their barbecue, but neighbors wonder why the Nature Conservancy is burning up its nature preserve. It has been an educational process. We have learned a lot and our neighbors have learned a lot. As most of you know, it's important to talk with your neighbors about what you are doing and why. Usually, if you explain what you are doing and why, they can probably get along with it as long as they do not think the fire is going to burn up their condominium or their nursing home. We also had to learn about air pollution laws, environmental regulations and operating within the complex context of local regulation, local concerns, and the ecological needs of the community. Moreover, this is just one preserve where we are reintroducing fire in the landscape and none of them are easy.

We have also learned that sometimes we bought the wrong thing. For example, on the San Miguel River in Colorado we were interested in protecting some very high quality riparian forests, so we bought a little parcel where there were great cottonwood/willow forests. We thought we were done. Well, anybody who has worked in riparian ecosystems knows that there is a flooding regime that affects the distribution of substrates, which affects the regeneration cycle of riparian forests. We bought a riparian forest that, after the next flood, is not going to

be there. We didn't have any place for this riparian forest to regenerate. From this we learned a lesson about ecological processes and the difference between ecological boundaries and administrative boundaries.

We realized that the boundaries of concern depend on the question you are asking. In the riparian forests, the boundaries of concern depended on the natural hydrocycle of that river and the successional and regeneration pathways for that forest type. The boundaries of concern in the Albany pine bush depended not only on the pine barrens but on the smokedshed. We have to work with multiple boundaries for multiple questions. We don't have the luxury of having one boundary that will work for all the questions.

Let me say a little about some old ways of thinking and some new ways of thinking. I would argue that in the past, many of the preserves we selected and acquired were chosen for species. As we became more sophisticated and knowledgeable, and as better information became available, we began working at multiple levels of biodiversity. In the past, we rarely designed a preserve to maintain biodiversity in perpetuity. Now we have a more sophisticated preserve design approach that incorporates both ecological processes and the local context of the regulatory community. This allows us to evaluate whether we will be able to manage a certain natural community at this site, or if we will never succeed at this place and, perhaps, should invest our resources elsewhere.

In the old way of thinking, we thought we managed the preserve (the administrative unit). We now understand that, more often, we need to manage ecological processes which maintain the species and communities on that preserve.

In the old way of thinking, we had few partners. We thought we could do it alone, just a private conservation organization going out there doing our own thing. We now recognize that to succeed in the long-run we have to work with local communities because the ecological processes cross all of our lands.

Moreover, "in perpetuity" is a long time. I don't expect to be here for "in perpetuity". This means that long-term conservation success depends upon the local community caring about that ecosystem still being there and those species and communities persisting in the long-run. There has to be local understanding of the conservation purpose. Why do we have a nature preserve over here? Why should we care about that? Why is it in our interests and our children's interests to maintain that place for the future?

In the old way of thinking, we thought you could walk away from a lot of circumstances and nature would take care of everything. We now know that nature is not balanced. There is a dynamic change process going on in most natural systems. We rarely understand the nature of these changes and would like these ecosystems to be able to change within some bounds of variability. One of the tough challenges we face is determining how much change is acceptable given the human communities that are also in that ecosystem. We don't have answers to most

of those questions. Given our ignorance, we also must not assume that we know enough to “manage” everything.

In the Nature Conservancy, the old definition of success was dollars raised and acres acquired. Our new definition of success is much harder to measure and, I would argue, we don’t know how to do it yet—biodiversity conserved within a sustainable landscape. That is challenging!

I think these lessons have taught us to look at our preserves in the context of a human dominated landscape. They have led us to rethink our approaches. The current campaign we are involved in is called the Last Great Places Campaign – An Alliance for People and Nature. We are trying to take an ecosystem approach to identifying and managing our preserves, recognizing that our preserves are a dedicated piece of protected area within a larger context. Human communities and ecological processes, essential to protecting these species or communities, must both be allowed to persist for our conservation activities to succeed.

We have created a little mantra that we use in our planning actions on preserves and bioreserves. We call it the “six S’s.” It is handy to have something to write down that you will remember and it makes us think about our goals when planning our activities.

The first “S” is **system**. What is the ecosystem or species of concern here? What are the goals for this site? What are the species or communities of this area that we are trying to protect? How does this system work? It makes us think about the boundaries and the processes essential to protecting these species or communities. We try to have an ecological model about how the system works so we can think about what it will take to protect it.

The second “S” is **stresses**. This helps us realize that many human activities have unintended consequences on biodiversity. We think about what stresses adversely affect these communities and identify those which must be addressed to succeed at protecting species and communities on our preserves.

The third “S” is **sources**. What are the sources of those stresses? Are they irrevocable or changeable? Is diminished water quality in the stream causing mussel species populations to decline? Would helping upstream farmers put in no-till agriculture decrease sedimentation and prevent those mussel beds from being covered by dirt? We think about the sources of the problems and what can be done to reduce the harm from these sources.

The fourth “S” is **situation**. What is the local context? What are the concerns of the local community? What factors are critical to the local economy? What are the local laws and regulations? What are our options? Because we also work in an international context we can not assume the same laws and regulations exist as in the United States. You have to think about the laws, constraints, opportunities and the local communities. How will this nature preserve fit into that local situation? This gives us an opportunity to have strategies for conservation.

The fifth “S” is **strategies**. What strategies are possible to protect the species or natural community of concern given the local situation, the stresses and the way the system works? What role can the Nature Conservancy best play to protect biodiversity at that place? In what strategies should we invest to succeed here?

The last “S” is **success**. As I have already mentioned, measuring conservation success is difficult. What does it mean to be able to measure your success at biodiversity conservation within a sustainable landscape? This is something we are struggling with. We have the tough challenge of trying to create ecological criteria for our success because our goal is biodiversity conservation. We are not very good at this yet.

In the last several minutes I would like to say a few things about some common challenges I think we all face and a few comments about ecosystem management. One of the challenges is setting goals. For the Nature Conservancy, we already know our mission is biodiversity conservation. That means we are interested in maintaining the species and the natural communities and protecting them in perpetuity. This is easy to say but challenging to put on the ground.

Another common challenge we face is the need for more coordination, working with many different people, across different ownerships and across jurisdictional boundaries. We are used to going it alone, I think a lot of us are. We have recognized you can’t succeed by doing that. Coordination takes a lot of time, resources, people and a willingness to listen to different perspectives.

Another common challenge is facing the fact that we are really ignorant about how ecological processes work. We need more data to understand how they work and better research to inform what we do. We try to use an adaptive management approach on our preserves which requires an investment of time, monitoring, analyzing the data and using the results to inform what we do next. Adaptive management acknowledges that we can not always afford to have the right answer before making a decision. Often we have to act today. But we do need to have an opportunity to learn from our actions. We strive to get better data to inform our future actions. This is particularly true because, if we choose wrongly, we may fail completely at our conservation objective on a preserve.

Uncertainty is another challenge we all face. Ecosystems are very complex. We can’t always predict what will happen. In some sense, this means we can’t always predict we will succeed. Most of us would prefer to live in a certain world, to know that if we did A, we would get B. But we do not have that luxury in many of the ecosystems in which we work. We are all struggling to work despite the uncertainty, even while we strive to bound the uncertainty to acceptable levels.

As I have already mentioned, it is essential, but difficult, to work at multiple scales. We must address both different scales and different levels of biodiversity. This can lead to trying to achieve multiple goals within the same landscape.

Finally I would say that one of our struggles is to pay attention to the relationship between ecological structure, function and

processes. For many ecosystems in which we work, the roles of species, communities and ecological processes are poorly understood.

I will close with a few comments about my view of some key attributes of ecosystem management. Ecosystem management puts maintaining ecological health first. It requires attention to multiple levels of biodiversity. It requires integrating research and management. It encourages us to look at sustainability of ecosystems, communities and economies. It encourages cross-boundary and multiple ownership approaches. It includes species conservation. It is often said that ecosystem management is not single species focused, rather there are multiple goals. Sometimes this is multiple species. Ecosystem management includes people and ecology and requires a recognition that natural systems change, but also that ecological limits exist.

There are also many things that ecosystem management is not. It is not easy. We wish it were. I wish that all 800 of you knew how to do it, that each of you could raise your hand and say, "I have solved this problem." You could just tell us all "the truth" and we could all go out and do our work. But ecosystem management is not easy and it requires working across jurisdictional, political, professional and conceptual barriers. It requires

working in systems where we do not have enough information. We can assume we will gain more information over time, but we will never be certain everything we do will work.

Ecosystem management is also not, necessarily, about large areas. While we are here talking about the western interior forests, which can be described as a very large area in the United States, ecosystem management can be practiced in many places and at many smaller scales. Nor is ecosystem management a way to stop paying attention to species conservation. Finally, I would argue ecosystem management is not business as usual. It requires that we change our goals, our thoughts and our actions.

In the Nature Conservancy we have found that in our efforts to conserve biodiversity, we have inevitably been led to the conclusion that we must have an ecosystem approach to our planning and management of our preserves. To do this we must work with other people to succeed. We do this not out of trendiness or because "partnership" is the most fashionable word this year. We do this out of necessity. We came to this way of thinking in a parallel path with many other people. To succeed at our mission inevitably requires that we look at ecology, economy and community. We must build some process that will allow us a future in the twenty-first century that we all care to have.

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