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The Wildlands Project Outside North America

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Abstract—The Wildlands Project seeks to create a connected system of protected areas across North America that will ensure the survival of all native species, including top predators and wide-ranging species, in the context of fully functioning ecosystems. Core protected areas are designated based on the biological needs of key species and the requirements of critical ecological processes. To work they must have, or will be restored to have, those attributes traditionally ascribed to wilderness. Some critics argue that The Wildlands Project model is inapplicable to other parts of the world, especially the developing world. The inapplicability is based on nonbiological considerations. The applicability of Wildlands type conservation outside of North America is examined in light of large-scale conservation work in Latin America and Asia. In both regions, conservation efforts similar to those of The Wildlands Project are underway and show promise. There are important differences, but the similarities are significant enough to suggest the approach can be applied. The similarities between conservation work in North America, Latin America, and Asia is attributable in some cases to Wildlands Project influence. In other cases, similarities are due to similar strategies emerging from similar conditions leading to species loss.

The Wildlands Project

The Wildlands Project has been working across North America for 10 years to address the current extinction crisis. In places like the "Yellowstone to Yukon" (Y2Y) and the Sky Islands Wildlands Network (SIWN)—both multinational efforts—conservationists are developing and implementing systems of connected protected areas. These regional projects are elements within a broader, continental program stretching from the Arctic to the Darien Gap. The continental scale is important not just because the threats to nature are continental. Threats aside, continents are evolutionarily and ecologically significant (Flannery 2001; Soulé and Terborgh 1999). Prefragmentation landscape level connectivity has played a major role in structuring communities, and it affects both top-down and bottom-up regulation of ecosystems (Clark and others 1999).

The Wildlands Project was created in response to accelerating species loss and massive landscape hemorrhaging. The effects of habitat loss and degradation were magnified greatly by the loss of connectivity. The legal boundaries of protected areas were becoming actual boundaries as development and conversion consumed intervening unprotected wildlands. These actual boundaries were biologically inadequate to sustain species and processes over the long haul, even within the biggest islands like Yellowstone National Park. This was especially true for wide-ranging species such as top carnivores, some ungulates, and others, and for important ecological processes like fire and succession (Noss 1992; Noss and Cooperrider1994; Terborgh 1999). It was clear to us that more and bigger protected areas were needed, and that natural connectivity also needed to be protected and restored.

We also recognized that responding to threats, while absolutely necessary, was not sufficient. We needed to create an alternative vision, a positive vision of a biologically healthy North America. We needed to be able to say that this is what we stand for, rather than simply opposing this or that development. The best defense, it has been said, is a good offense.

Almost since the beginning, there has been global interest in our approach as outlined in various publications describing it (Noss 1992; Soulé and Noss 1998; Terborgh and Soulé 1999; Terborgh and others 1999). There has also been skepticism about the application of our model outside of North America, or even English speaking North America. The question is important because the extinction crisis is global, not North American. We need answers about what works *now*. There are two ways to approach the question of the applicability of our approach. The first is to examine essential aspects of our approach and ask whether these can or should be applied elsewhere. This approach involves more than just thought experiments, but it certainly includes them.

Another approach, the one I will take, is simply to compare our approach as it has evolved with other efforts around the world. Michael Soulé (in press) has outlined our approach in some detail. In summary, our goal is to create systems of connected protected areas that have a very high probability over the long haul of protecting existing or recovered populations of key species, including wide-ranging animals and top carnivores; that encompass functioning ecosystems of all types; that allow processes to operate unencumbered; and that can accommodate climate change. At the heart of these protected systems are big cores that have, or are restored to, a wildlands state. By wildlands, I mean self-willed land—a landscape undominated. Humans are very poor ecosystem dominants and differ from other dominants (Rodman 1987). These goals reflect fundamental values about the intrinsic worth of nature and recognize the limitations of humans to substitute their brains for evolution. Another feature of our approach is the reliance on biology, ecology, and related sciences to tell us what types of areas we need to protect, how much, and where, in order to achieve our goals. Just as we

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must have a positive vision and not just respond, so we also cannot simply accept the leftovers of civilization. We must protect biologically valuable lands. As a species, we have choices and extraordinary flexibility. Other creatures do not.

Our goals (which may be informed by a range of values) and our reliance on science (which includes all systematized and testable knowledge) are invariant aspects of our approach. The variant aspects are the human dimension. Societies vary in their patterns of land ownership and use; attitudes toward nature and other creatures; population concentration and dispersal; economic development and geographic mobility; effectiveness of law enforcement; road type and density access to wildlands and to firearms; and in their organized and financial support for conservation. These are not totally independent of biology, but interact in the application of our approach. A society without firearms and extensive motorized access may require smaller buffers (for example Oates 1999). Lands of high agricultural value are usually also of high biodiversity value. This conflict is universal. But in societies where labor-intensive agriculture predominates, there are large numbers of people present, and this creates different kinds of pressures than in societies where technologically intensive agriculture dominates and fewer people are present, most having moved to cities (Houston 2001). Those remaining, however, are usually motorized and armed.

With this model in mind, I will examine large scale conservation in Latin America and Asia. Much conservation is not at a large scale, but it is important work. Without large-scale protection, however, much will be lost.

Latin America

The Ecological Corridor of the Americas (EcoAmericas) is an effort to create a system of linked protected areas from Tierra del Fuego to Alaska along the continents' mountainous backbone (Wildlife Conservation Society 2000a). Project goals include the designation of new protected areas, the expansion of existing protected areas, and the creation of linkages, all based on the principles of conservation biology. EcoAmericas is also seeking to strengthen the management of protected areas, improve their financial health, and improve cross-boundary coordination.

In the near term, EcoAmericas is working to consolidate 36 World Heritage Sites and Biosphere Reserves totaling about 45-million ha (173,746-mi^2) (Boza 2001). These sites are in 15 countries from Argentina to Mexico. Other current subprojects include: consolidating core areas and designating connections from coast to coast in the Talamanca region (Panama/Costa Rica border); creating a new park of 25,000 ha (97 mi^2) along the Costa Rica-Nicaraguan border to maintain connectivity along the MesoAmerican Biological Corridor; creating a major, 4-million-ha (15,444-mi^2) linkage zone called the Yungas Andinas Biological Corridor from Southern Bolivia to Northern Tucuman Province in Argentina; and consolidating management and enhanced protected status for Madidi National Park, Bahuaja-Sonene National Park, and Tambopata National Reserve, which are contiguous protected areas in Bolivia and Peru that lie in the 30-million-ha (115,831-mi^2) Vilcabamba-Amboro Conservation Corridor. Work, of course, continues on the Meso-American Biological Corridor itself.

Not surprisingly, there are similarities and differences between EcoAmericas south of Mexico and The Wildlands Project. (Mexico north, and Wildlands efforts such as the SIWN and Y2Y, are part of EcoAmericas.) The most important similarities are:

- Existing protected areas are too small and in many cases do not include the most biologically important parts of the landscape.
- New protected areas are needed and existing protected areas need to be expanded, based on the principles of conservation biology.
- Large-scale ecological and evolutionary process are a major focus in protected area design.
- Connectivity, based on genetic, migration, and dispersal needs of selected species, is a major focus.
- A transboundary approach spans both intranational and international borders.
- Human activities in buffer zones are limited to those that are compatible with the needs of species in adjacent protected areas, and that are sustainable.

EcoAmericas differs from the Wildlands model in that:

- Biodiversity is a major focus of protection, but wide-ranging species and top carnivores are not emphasized.
- Connections are not strictly protected in most cases, but will have the status of buffer zones.
- Providing for change is a focus, but climate change is not specifically mentioned. (The MesoAmerican Biological Corridor's predecessor, Paseo Pantera, does identify climate change as a major design criteria [Sanderson 1993].)
- Limits on roads and motorized access are not emphasized.
- The ability of protected areas to contribute to the economic well-being of the adjacent communities is stressed.

On the face of things it does not appear so very different. And it is too early to tell on the ground. I will hazard some early analysis. It is one thing for scientists and advocates to call for protection of lands adequate in type, size, and location to protect most species and processes; it is another to create a political coalition strong enough to create and enforce such a strategy. It is in implementation, which requires building coalitions of various kinds (grassroots and elite), where limitations become sharply defined and the choices are often stark and difficult. Humans often desire the same biologically valuable lands that other species need. This essential tension can make it difficult to designate protected areas and certain management regimes, or to meaningfully enforce those designations and regimes. Nonetheless, it is a very important accomplishment to have conservation planning and implementation moving forward at a continental, even multicontinental, level among over a dozen countries.

Russian Far East and Northern China

There are many landscape-level protection and recovery efforts underway in this region, but I do not know of any that approach being continental in scope. Scientists from the

World Wildlife Fund (WWF) and the Wildlife Conservation Society (WCS)—both groups have a permanent and long-time presence in Asia—have proposed a large-scale framework for tiger protection and recovery (Dinnerstein and others 1997). It includes the Russian Far East (RFE), India, Southern China, Indochina, and South East Asia. Within each of these regions, they have evaluated existing tiger populations, suitable habitat, and mortality pressures, and recommended priorities for protection. They propose clusters of core areas and connectivity among them to maintain tiger populations. Habitat fragmentation, as well as habitat loss, is considered a major immediate threat. The solutions they propose are transboundary.

Another large-scale effort involves increased coordination within Russia among Zapovedniks (Maleshin 1999; RCN Editors 1999b). Established over the decades, based on scientific findings of high biological value (ecosystem representation, not focal species), Zapovedniks have generally been managed fairly independently, notwithstanding centralized funding. In the last decade, a lack of funding from the central government has driven Zapovednik leaders to seek joint solutions to their problems. Notwithstanding the economic driver, discussions of biological problems and joint strategizing about dealing with islandization and other threats have occurred. Recognition of the importance of cooperation across Russian administrative boundaries and internationally has also increased.

Large-scale conservation planning and implementation in the RFE and Northern China is well underway. Interaction with similar efforts exists, but not day-to-day coordination. One of the more important efforts is being led by the Wildlife Foundation, headquartered in Khabarovsk, and founded by Alexander Kulikov and others (Wildlife Foundation 2000). The Foundation works with other regional nongovernmental organizations (NGOs), international NGOs, and government agencies in Russia, China, Mongolia, and North Korea. Their work emphasizes protection of the Siberian (Amur) tiger, Far Eastern leopard, Japanese and hooded cranes, and other rare, threatened, and endangered species.

Protection of core areas by Zapovednik or other designation, connectivity, and management of other areas for protection are primary tools. Extensive biological analysis of target species, prey populations, habitat cover, and other factors underlies the mapping and proposed management regimes. The Foundation also works to stop poaching, to cooperate with the Convention on International Trade of Endangered Species (CITES) and government agencies on illegal trafficking, and to find economic alternatives to the most destructive, extractive activities. The Khabarovsk Krai Government, due to the Wildlife Foundation, its cooperators' efforts, and WWF funding, has committed to protecting 10 percent of its land base in a system of connected cores.

Protection of the region's top predator, the Amur or Siberian tiger, has attracted many international NGOs and scientists. In 1995, Bruce Marcot identified three corridors that would link tiger habitat in the RFE and Northern China. The first, along the Sikhote-Alin Mountains, runs mostly north-south, linking various Zapovedniks, parks, and refuges. It also includes east-west linkages to important tiger habitat. Two other corridors are proposed: one linking tiger habitat in Khaborovsk with tiger habitat in Heilongjiang Province, China; and another linking habitat in Primorsky with that in Jilin Province, China, and North Korea.

Miquelle and others (1999) and Pikunov and Miquelle (2001) developed a more comprehensive proposal for Far Eastern leopard and Amur tiger conservation that stretches across Northeast China and the RFE. They have recommended connecting existing and proposed protected areas with a system of corridors to create a core network. They also recommend protecting all potential habitat outside the core through a zoning system to delineate and appropriately manage high-priority tiger habitat. They argue that all remaining tiger habitat must be retained to sustain a minimum population of at least 500 tigers. Habitat outside of the core system would be managed to provide for sustainable human use compatible with tiger and leopard protection. Restrictions would include limited road access, low-intensity logging, and well-controlled ungulate hunting. The plan calls for transboundary connectivity at three points along the Sino-Russian border. The first step toward creation of transboundary protected areas has been taken with the creation of the Hunchun Tiger and Leopard Reserve in Jilin Province, China. Khabarovsk has agreed to implement a refined version of this plan, while in Primorsky Krai, planning is still in the early stages.

As part of the same effort, Pikunov and others (2000) have proposed large, core-protected areas, connections, and regionwide zoning to ensure the survival of the Far East (Amur) leopard. They stress the problem of fragmentation and the need to protect very large areas and connect them. Without such action, human activity will continue to cause behavior changes and disrupted family structure that undermines successful reproduction, and the leopard will continue sinking toward extinction.

The Wildlife Conservation Society and the Heilongjiang Forestry Department sponsored a workshop in October 2000 to plan a transboundary tiger and leopard reserve and also to protect prey species (WCS 2000b). The New York Times reported on September 11, 2001, that a reserve was established on the Chinese side.

Large predators are not the only focus of conservation in Asian Russia. The two pieces of Khingansky Zapovednik—home to endangered cranes and storks, as well as over 1,000 vascular plants—have been connected by creation of a special purpose preserve (Andronov 2000). The Zapovednik was enlarged earlier so that it would be big enough to contain all of the essential elements of critical hydrological processes. Anthropogenic fires started outside the reserve are a real threat to forests, and management changes have been proposed to address this problem.

In Central Asia, where Russia, Mongolia, and Kazakhstan border each other, the Argali sheep has been confined to islands in the high mountain ranges. Historically, these areas were connected, and the sheep seasonally used the lowlands. Efforts are underway to expand the two Zapovedniks in Russia, create new protected areas, and provide connectivity (Paltsyn 2001). In northwest Siberia, the 5-million-ha (19,305-mi^2) Great Vasyugan Bog is home to high plant and animal diversity. A protection plan spanning several jurisdictions and watersheds is being implemented (Valutsky 2000). It includes several large core areas and connections.

In Kamchatka, the League of Independent Experts and others are proposing linkages among existing protected areas and the creation of many new protected areas (Russian Academy of Sciences 2000). Before the fall of the Soviet Union, most of Kamchatka was off limits to exploitation, and the region was shrouded in military secrecy. Since the Soviet demise, the region has opened up to exploitation while law enforcement has been weak. There is a tremendous urgency to do the scientific work necessary to identify areas needed for protection; work done to date suggests much critical fish, avian, and bear habitat are not protected.

This brief review of some major conservation work in Russian Asia and Northern China suggests some important similarities with North American conservation, including:

- Conservation has long been science based in Russia, perhaps back to the turn of the 19th century (Weiner 1988); other countries such as China, and Mongolia have moved in that direction.
- There is widespread recognition, in the face of increased development and other threats, that existing protected areas are too small and need to include additional critical habitat.
- New protected areas are needed, or absent that, zoning is needed that effectively manages additional important habitat for biodiversity.
- Buffer zones are used to limit human activities to those that are compatible with the needs of species in adjacent protected areas.
- Predators are frequently emphasized in conservation planning and implementation as both umbrella and flagship species.
- Top predators, and in some cases large-scale ecological and evolutionary processes, are a major focus in protected area design.
- Connectivity, based on genetic, migration, and dispersal needs of selected species, is a major focus.
- Transboundary approaches are common, spanning both intranational and international borders.
- Limiting roads and motorized or other illegal access are emphasized.

There are also important differences that cannot be minimized:

- Continental-level planning is not well developed, and where it is emerging, it is driven by the need to develop economic support for protected areas, rather than by a biologically based strategy.
- Broad, multispecies based reserve design is occurring in some regions, but not most.
- High quality habitat is in many cases not proposed for status as a core protected area, but is zoned for multiple use with management regimes aiming to prevent habitat degradation, poaching, and so forth.
- Climate and other anthropogenic change is rarely noted as a criteria for reserve and connectivity design and designation.
- The ability of protected areas to contribute to the economic well-being of the adjacent communities is often stressed in justifying their continued existence and/or in proposals for new protected areas.

It is not too surprising, given the many biological, demographic, scientific, and even cultural similarities between northern Asia and northern North America, that conservation efforts should also show similarities. Differences between the two large regions in economic stability, infrastructure development, effectiveness of law enforcement, role of international borders, and stable funding for conservation are real and important. They call for different strategies, if not for different goals. Continental level coordination may emerge in the future, but for now Asia, even northern Asia, is very big, very diverse, and resources comparatively limited.

South and Southeast Asia

The Wildlife Protection Society of India (WPSI), founded in 1994, identifies habitat fragmentation as a major threat to wildlife, along with direct habitat loss (WPSI 2001). Illegal trafficking, understaffed protected area management and enforcement, and extractive encroachment are also high on the list of threats. The thrust of much WPSI activity is on improved enforcement, especially poaching and international trade in tigers and tiger parts. Although committed to broad biodiversity protection, they see the Bengal tiger as a flagship and an umbrella species. By protecting tiger habitat much else is protected.

But tiger habitat is shrinking, not growing. Since 1973, India has lost one-half, or 50,000 km^2 (19,305 mi^2), of its tiger habitat (Sahgal and Scarlott 2001). The number of tigers is down from 4,000 in 1990 to 3,000 now, and only about 8 percent of the historic population of about 40,000 live in and around 26 reserves and parks. Like Yellowstone National Park, Glacier National Park, and the Bob Marshall Wilderness area, Indian reserves such as Ranthambhore and Sariska were once linked by 150 miles of forest, but they are no more. Increasingly, forests are cut right to reserve boundaries, and even beyond. Illegal woodcutting and edge effects are not limited to poor villagers and desperate poachers, but to industrial logging, industrial mining, and hydro operations—much of it driven by globalization and international financial institutions like the new, ecofriendly World Bank. The solution to this onslaught, Project Tiger advocates say, is bigger reserves and the re-establishment of connectivity.

Dinnerstein and others (1999) agree that existing reserves are too small and cannot function as islands. Buffers must be expanded, access by nearby large human populations must be limited, and dispersal corridors must be recreated if tigers are to persist. Voluntary resettlement of those living in protected areas is also considered essential, along with better enforcement: constant patrols, improved radio communications, armed backup, and an undercover strategy to tackle professional poachers and smugglers, many of whom are primarily drug traffickers (Kumar and Wright 1999). Providing local people with a share in protected area revenues is also seen as important in gaining their needed support.

Significant similarities exist between South Asian conservation work and North American work. Conservationists in southern Asia recognize:

- Existing protected areas are too small and in many cases do not include the most biologically important parts of the landscape.
- New protected areas are needed and existing protected areas need to be expanded, based on the principles of conservation biology.
- Top predators are important as umbrella and flagship species; they are also important ecosystem regulators.
- Connectivity, based on genetic, migration, and dispersal needs of selected species are critical in species survival; much if not most has been lost and it must be restored.
- A transboundary approach, spanning both intranational and international borders, is required.
- Buffer zones around protected areas must limit human activities to those that are compatible with the needs of species in adjacent protected areas, and be sustainable.
- Access to protected areas must be limited; economic activities in protected areas are incompatible with protection.

Unique characteristics of South Asia include:

- A greater emphasis is needed for improving basic enforcement in the field and in the courtroom.
- A greater emphasis is required for antipoaching and to crack down on illegal trade in species.
- The need for generating revenue in buffer areas for local residents is important.
- Less emphasis on multispecies approaches in large-scale conservation.
- Connections are not strictly protected in most cases, but will have the status of buffer zones.
- Providing for change is rarely noted as a focus of planning or protecting.

Again, I do not think these similarities should be too surprising. South Asia and North America share habitat complexity: thousands of miles of temperate and subtropical coast line, a vast range of ecosystems, variants and gradations from the subtropical to the montane, striking seasonal variation, and much more. South Asia, of course, has been settled longer and more intensively, and its indigenous cultural roots, notwithstanding British rule, still predominate in ways that cannot be said of much of northern Asia or North America. Although parts of South Asia are heavily populated, it is worth remembering that Florida and California, two of the most biodiverse areas of North America, are heavily populated and growing rapidly. Despite the population growth in both States—and all that entails in a country where giving birth to a child also means giving birth to SUVs, TVs, and a host of other goods—protected areas have increased and effective connectivity is being implemented (Barotz and Spitler 1998/1999; Preservation 2000/2001).

Other Areas

Conservationists in other parts of the world are also focused on predators, the large scale, and connectivity. Jason Badridze in the Caucasus, the European Environmental Network, and the Large Carnivore Initiative in Europe are examples. In 1999, the Ukraine committed to more than doubling the amount of land in protected areas and to creating biological connectivity (RCN Editors 1999a). The Kgalagadi Transfrontier Park in Namibia and South Africa consists of about 38,000 ha (147 mi^2) and reflects the underlying ecological unity of the area (Shroyer and others 2001). The park's aims include protection of wild ungulates, including their migration needs, and predation regimes. An agreement between South Africa and Mozambique will foster comanagement of Kruger National Park and adjacent areas across the border, expanding the area of backcountry protection. Several other transnational protected areas are under creation or being linked and comanaged, including efforts between South Africa and Botswana, and South Africa, Namibia, and Angola. Project Wild is restoring megafauna such as elephant to Angola in an effort to recover ecosystem functionality. Many of the National Parks and transboundary parks are specifically providing for wilderness—areas where humans will not visit in large numbers and management will be minimal. Due to the vast arid expanses of many parks and the presence of predators, jeep tracks, and some roads will be permitted, but access restricted.

Discussion and Conclusions

What is the source of the striking similarities found, first in the adoption of large-scale approaches, and second in their similarity? Some will suggest imperial influence. While human societies remain divided internally and among themselves, in patterns of structured inequality that are proving very difficult to change, I do not think looking for an explanation there will get us very far. Yes, there are more U.S. scientists in India than the other way around and that can make a difference, but not, in this case, an essential one.

All human societies share a single planet, and it is to the biotic and abiotic processes that we all owe our lives and livelihood. There is one nature, one Earth. All human societies, despite their many differences and positions in the international economic and political order, have directly or indirectly, from growth in numbers and consumption, degraded, destroyed, and fragmented habitat. The threats may vary in some detail, but the results are drearily the same. Thus, it should not be surprising that careful observers around the globe would come to similar conclusions: if we are to stop the current extinction crisis, enough of the Earth must be set aside to allow ecological and evolutionary processes to recover and maintain their health with a minimum of human intervention. Looking at wide-ranging species and top predators is an important part of this approach. Whether one looks at processes or species, large protected areas and connectivity seem little more than common sense.

Other steps are important to conservation, including making human societies more Earth friendly. And on this topic there is perhaps greater disagreement about strategies that must be pursued. But there is no substitute for basic and direct protection, and achieving it as I have just suggested involves some essential actions.

Lest I appear to be overstating the role of science, let me state clearly that science does not provide us with our conservation values; it can only suggest means for realizing goals chosen on the basis of values (Johns 1999). Are the values underlying large-scale conservation driven by power relations? It would be foolish to deny any influence, but I

think fundamentally it is not the case. Respect and love for nature exist in almost every culture to some degree, and our deep roots are all the same—we were once hunter-gatherers. Beyond that, I think it not surprising that there are many in every culture that feel very strongly the bonds with all life and seek to protect it.

While parallel evolution has thus contributed to the current convergence on large-scale conservation, diffusion of ideas has also played an important role. Foreman (1998/1999) and others (for example, Zahniser 2000) have set out the larger historical sweep of this; I want to focus more narrowly on the last couple of decades. I believe that The Wildlands Project has had a profound influence—far beyond its size—on the conservation movement. Sometimes our influence is acknowledged (Ankerson 1993; WCS 2000a,b), sometimes not. We, of course, have our own debts. And the process of influence is less linear than it is interactive.

Briefly sketched, the immediate origins of the Wildlands model went something like this: in the early 1980s, Larry Harris of the University of Florida proposed landscape linkages between reserves in that State. Reed Noss made a similar proposal for protected areas in Florida. In early 1985, Noss and Harris working together proposed a connected reserve network for northern Florida. Later that year, Noss developed a first Statewide map proposing connectivity across the entire State. In 1990, Archie Carr, also in Florida, but working on MesoAmerican conservation, conceived of Paseo Pantera. In 1991, the Paseo Pantera Project was born, and in the same year the first workshop was held that led to a $3-billion plan for acquiring land for reserves and connectivity in Florida. In 1992, Noss published his Land Conservation Strategy article in *Wild Earth*.

The human dimension,the way in which particular societies—and the way in which the global economy works through those societies—degrade the natural world, does vary. Political systems vary. Resources for conservation vary. These variances call for a variety of strategies and specific objectives on the road to more common goals. Even here, however, there are similarities:

- What it is currently possible to achieve in conservation is inadequate—we must change what is possible in order to achieve our goals. We must push, push, push and never let up.
- While humans appear to exercise great power over nature—at least destructive power—and hence appear to define the context for nature, this is only appearance. Nature is the foundation of and context for all that we do and are.
- If, in our hubris we ignore this, the great tragedy of extinction will continue.
- There are two kinds of human hope. One is based on our psychological need to avoid despair—we hope in order to keep from going crazy. Another kind of hope is based on an assessment of the state of things—are they moving in a direction we consider hopeful, that is, toward good? We need to create the basis for that second sort of hope. I think we have started to do that with efforts across the globe aimed at large-scale conservation.

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