

A Journey's End?

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WHAT DO A GRAY WOLF, A WOLVERINE, AND A JAGUAR ALL HAVE IN COMMON? It's not a trick question—it's about dedicated space to roam. It's a question about what we are going to finally do to get off of our collective pages of rhetoric and move to coordinated on-the-ground actions. How do the National Park Service (NPS) and other federal, state, and private land managers, partners, and neighbors contribute to a larger National Conservation Strategy? This would be a strategy that uses best available science, and builds from the core of already protected areas to ensure that we act upon the conservation of our national natural heritage today and well into the future.

Numerous US laws, policies, and programs, from local to national scales, implicitly or explicitly support the conservation of biological diversity. These protections, including NPS lands and waters, represent a significant national investment in conservation. They have been necessary but insufficient to stem the tide of biodiversity loss and degradation of ecosystem services. What is needed now is a cohesive and comprehensive approach for designing a cornerstone strategy. We examine the biological rationale and a path forward to developing roles of the national park system in a broader conservation strategy, and focus on potential action steps that can be taken by NPS. It is only with a national strategy that parks can manage and conserve biodiversity within and beyond their boundaries.

In short, we set forth a vision to create action.

NPS, on behalf of the American people, was created a century ago to administer federal lands and waters with a mission to “conserve the scenery and the natural and historic objects and the wild life therein and to ... leave them unimpaired for the enjoyment of future generations” (National Park Service Organic Act, 1916). NPS currently administers over 400 park units spanning over 84 million acres in every state and in four US territories.

Our nation depends upon NPS to safeguard some of our most cherished natural and cultural resources and landscapes, as well as our American stories, for our current generation

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and those of the future. But it is increasingly clear that NPS cannot achieve its mission simply through good ecological stewardship of NPS units alone. This reality is particularly obvious for conservation of the many migratory species that inhabit or transit through national parks seasonally. In its 2001 report *Rethinking the National Parks for the 21st Century*, the National Park System Advisory Board envisioned an expanded role for NPS to play as trustees of many of the nation's natural resources.

We, as a land management agency, and more importantly, as a conservation agency, must ensure the persistence of native species (migratory and resident), their habitats, and their extraordinary and magnificent, yet challenged, journeys. We must transform how NPS does nature conservation in the 21st century. Postage-stamp-size protection measures must be replaced by a whole-systems approach. Continental conservation, with its inherent focus on landscape-level connectivity, must be not only strategized, but implemented. We must enhance the Park Service's ability to address the issue of corridors, and conversely fragmentation, in surrounding landscapes on varying scales, which affect wildlife species and the habitats through which they range. Such complex and changing factors can impair park resources, nationally and internationally, subsequently impacting the journeys of wildlife (Figure 1).

Figure 1. Brown noddies, Dry Tortugas National Park, Florida. Brown and black noddies, magnificent frigatebirds, and masses of sooty terns nest along the beaches of Bush Key. Although populations are considered stable worldwide, Wetlands International considers the population trend for noddies to be unknown. Island colonies appear to be at risk from the threat of invasive species and threatened by predation from introduced rats, cats and brown tree snakes. Photo courtesy of Elaine F. Leslie.



Achieving new conservation advances while simultaneously ensuring our past investments against rapidly changing conditions requires conservation synergies far beyond the current levels that exist within NPS or even within the departments of the Interior and Agriculture. Such an approach will require a larger vision for conservation across the country, including partnerships and efficiencies of scale within the entire community of federal, state, and local agencies and other conservation organizations. A truly national conservation strategy is one where federal entities, states, the private sector, and nongovernmental organizations all see a role for themselves in a national effort to preserve, restore, and conserve our national natural heritage. For NPS, it requires expanding beyond our constructed boundaries within the states as well as reaching out to our trilateral partners in Canada and Mexico—using new technologies and strategies in a more unified approach to continental conservation.

Where information and capabilities are lacking to preserve and protect species, restore habitat, or mitigate impacts, we must undertake efforts to develop feasible, sound, and scientific approaches to filling these gaps. While many NPS units may have different missions, jurisdictions, ownership patterns, and uses, their overall perceived role as landscape anchors in nature could create a much greater ecological whole than the sum of their individual parts. This biological principle is well understood and accepted in the scientific community, yet rarely taken to the next level of connectivity conservation on the ground (Figure 2). Numer-

Figure 2. Pronghorn antelope. Studies have shown that ancient migratory pathways for species still exist today. While the Path of the Pronghorn initiative has helped conserve a piece of the pathway, there is still no federal designation to preserve and protect migratory pathways. Photo courtesy of Elaine F. Leslie.



ous opportunities exist across the national park system to create this kind of connectivity with other landowners. We, as managers of these special places, must come to the realization that jurisdiction and ownership patterns are less important than the resulting grand landscape to preserve future ecological services to the benefit of the public good. The Everglades complex, for example, includes lands and waters owned or administered by federal and state agencies as well as two separate Indian nations, effectively creating approximately 5 million acres of contiguous habitat. Opportunities exist for further enhancement in places as distinct as the Mojave Complex in the California desert, the Yellowstone to Yukon area, the Greater Yellowstone and Grand Canyon ecosystems, Two Countries One Forest in the northern Appalachians, the Spine of the Continent from Canada to Mexico, and the Baja to Bering initiative. Moreover, multiple opportunities exist to work on smaller scales across this nation.

The National Park System Advisory Board has recognized this important and well-established biological principle of connectivity in past reports. NPS could now take the next step from the pages of these reports and become a significant partner in the establishment of goals and actions of creating contiguous habitat in conjunction with other entities.

Creating connectivity and enhancing overall ecological service retention through partnerships with states, counties, and municipalities should be a critical criterion in the selection of land acquisition projects that are considered for funding. In many locations, NPS plans may coincide with county master plans, state open-space goals, and regional efforts by various federal agencies. These sites should be targeted for high-priority funding for acquisition, easements, agreements, and the use of other open-space protection tools. In other places, an effective program of creating a similar consensus on the priorities for acquisition could be launched with a variety of partners and collaborations.

Our call to take action!

- *Identify partners and design resiliency networks and corridors (continental climate corridors, pollinator corridors) and create an official federal designation of a corridor.* NPS's Natural Resource Science and Stewardship Directorate (NRSS) and Biological Resources Division (BRD), along with the Scaling Up Team, will support efforts to analyze current applicable law and policies and work with international, state, and other partners to examine the benefits of a designated North American (trinational) corridor system.
- *Increase native species' capacity to recover, and retain native biodiversity.* NRSS/BRD is poised to assist parks with the restoration of plant and animal species—offering technical expertise and other support to restore and ensure biological diversity within and adjacent to parks through evaluation, feasibility studies, and on-the-ground efforts.
- *Create and support large landscape conservation in and around parks.* NPS is committed to the identification of potential areas and partnerships that lead to the restoration or establishment of habitat and corridors that benefit the movement of migratory wildlife. This may include cooperative agreements, contracts, and consultation efforts between partners and parks.
- *Align priorities across NPS with a larger conservation vision across the country and the*

continent. NRSS/BRD will continue to participate in such efforts as the Trilateral Conference, the work of the International Union for the Conservation of Nature, the State Department's efforts on the Convention of Biological Diversity, and collaborations with private and nongovernmental organizations that have complementary missions and goals in regard to the conservation of migratory species, their habitats, and persistence.

- *Implement species and habitat restoration projects (minimum of 10 new efforts by 2025—a proposed Natural Heritage Legacy) that we, as NPS, can put our efforts and momentum behind* (see Figure 3). BRD will assist parks and regions in the establishment of this list, seeking the funding and compliance support for subsequent actions with a targeted completion date of mid-FY17 for the list.

21st-century priorities

A first priority is to enhance protected core areas that strengthen resiliency to stressors in the context of large landscape conservation.

- *Promote and expand protection of healthy reefs, mangroves, and coastal wetlands that can minimize damage to coastal communities by buffering them against increasingly frequent and intense storms.* NRSS, through active participation and technical expertise from the NPS Water and Geological divisions, the Climate Change Response Program, the Inventory and Monitoring Division, and BRD, is committed to assisting parks and regions in technical support in this critical area through consultation and collaboration with states and other federal agencies.
- *Prepare now for climate change, alternative energy development, and urbanization.* NRSS/BRD is committed to continued engagement with and support of Land and Water Conservation Fund efforts as well as Department of the Interior-wide efforts to implement climate-friendly strategies. Actions include: (1) acquire, protect, manage, and enhance (expand) parks and natural areas that will be significantly altered or impacted by climate change; (2) identify national and international migratory species that utilize park and adjacent lands, and restore, protect and enhance resiliency in order to facilitate their adaptation; (3) design and implement conservation strategies to minimize harmful impacts, prevent impairment, and provide educational opportunities; and (4) create and collaborate on programs that research, analyze, and monitor alternative energy development and climate change impacts to wildlife species and their habitats and the ecosystems upon which they depend.

The process of building relationships and partnerships to address these issues at the landscape level requires a commitment and sustained focus that must be much broader than any in which our agency has engaged previously.

- *Use innovative conservation approaches that can be replicated other places.*
- Strive to ensure that these collaborative conservation partnerships are not the rare exception but the standard. Restore and protect our resources and values across the na-



Figure 3. Grizzly bear. While efforts are underway to delist the species from Endangered Species Act protection in the Great Yellowstone Ecosystem, grizzly bear restoration efforts are going through the National Environmental Policy Act process for the Greater North Cascades Ecosystem, with the core area being North Cascades National Park. Photo courtesy of Elaine F. Leslie.

tion and include landscape conservation as part of our standard business models and practices.

- *Embrace technology.* We must understand the benefits and consequences of the varied uses of technology (drones, GPS collars, geo-locators, infrared camera and audio traps, fertility control, and even genomic engineering approaches) while retaining natural history field skills and abilities in the workforce to support wildlife management and adaptation.
- *Share lessons from collaboration and networking in conservation at scale.*

Our interconnected conservation efforts will establish and preserve wildlife corridors between protected areas, promote healthy watersheds, and sustain and protect our cultural resources and values. Identified projects will become emblems of the need to protect and sustain entire landscapes that are vital not only to natural and cultural resource conservation, but to the vitality of communities, their economy, and our nation's quality of life. By support-

ing park efforts at even the smallest scales that work across jurisdictions, we make progress on seamless boundaries between parks and neighboring lands and waters, and as a result, connectivity!

Conclusion

Now, let's get back to the initial question: What do a gray wolf, a wolverine, and a jaguar all have in common?

Gray wolves haven't been observed in the Greater Grand Canyon Ecosystem since the 1940s. In 2015, the US Fish and Wildlife Service confirmed that since January 2015 a radio-collared female gray wolf had roamed from near Cody, Wyoming to a location just north of Grand Canyon National Park. She had traveled at least 750 miles, crossing Interstate 80 at least once. She was killed just outside the park in southern Utah by a hunter who mistook her for a coyote.

Existence of a wolverine had not been confirmed in North Dakota since the 1800s—not until early 2016, that is. In 2009, a wolverine, well known as “M56,” trekked from Jackson Hole and Grand Teton National Park in Wyoming and eventually reached Rocky Mountain National Park, thereby becoming the first wolverine in 90 years known to inhabit Colorado. In this journey M56 crossed the Red Desert in Wyoming, as well as Interstate 80 more than once. During subsequent years he journeyed throughout Colorado, and safely made it across Interstate 70 multiple times. The incredible journeys of M56 ended in a cow pasture in near Alexander, North Dakota, when he was killed by a ranch hand who didn't recognize him as a wolverine and thought he was threatening to livestock.

Northern Mexico is considered the northern limit of jaguar range. A prominent male jaguar known as “El Jefe” (“The Boss”), observed by means of camera traps in the Santa Rita Mountains south of Tucson, is most likely a dispersing male jaguar that is striking out on his own from the nearest breeding population, which is about 100 miles south in Sonora, Mexico. The journeys of El Jefe continue to capture the imagination and wild hearts of young and old alike who follow camera trap photos and videos with zeal.

Connecting protected areas through coordinated transboundary efforts is one of the cornerstones of what is needed in a national conservation strategy. It is essential to do now, given the changing landscape and climate. So what are we waiting for? These animals' movements are signals of the need to coordinate conservation across boundaries. If we pay attention to these three adventurous individuals and to the myriad of ancient migratory pathways, we'll know where corridors need to be officially established. They have in essence raised a flag and showed us a path forward. And we know who our partners are or need to be. It's time to take action. It's time to be brave and to be courageous. It's time to ensure that journeys do not end, but have bright beginnings.

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