

LANDSCAPE-LEVEL ECOLOGY:

CULTIVATING CONNECTIONS
BETWEEN PEOPLE AND LAND

by Jon Mobeck, Jackson Hole Wildlife Foundation



*THERE ARE TWO THINGS THAT INTEREST ME:
THE RELATION OF PEOPLE TO EACH OTHER,
AND THE RELATION OF PEOPLE TO LAND.*

- ALDO LEOPOLD

When we think of the health of an ecosystem, we tend to think first of the state of the land and wildlife. Scientifically, we monitor and report on various components that comprise “the land,” addressing questions like: How healthy is the stream or the soil? How about the air? What is the population trend for elk?

Doing this, however, often removes humans – removes ourselves – from the picture. Clearly, we are a part of the system: a contributor at best; a taker at worst; a beneficiary either way.

As a result, to properly assess the health of an ecosystem, we need to consider humans’ role, in particular how we affect the ecosystem’s functioning. This essay will focus on people and our structures, things like the homes we live in and fences we build to mark our territory. How are these affecting the

ecosystem? What about our other behaviors? Overall, how well is the ecosystem doing? And how well are we supporting the ecosystem?

To consider such questions, a good place to start is by considering the observation of Aldo Leopold, one of the founders of the field of wildlife ecology. What is the relation of people to each other? What are our relations to land?

THE LANDSCAPE SCALE

Ecologists, conservationists and (increasingly) the general public recognize we need to identify, preserve and actively steward vital wildlife movement corridors and watersheds at the landscape scale. The concept of landscape connectivity is not new. What is new is its growing and widespread acceptance as essential conservation theory.



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Just connecting large landscapes is not enough, though. Simultaneously we should also act to connect their human inhabitants, aiming to create and embed a culture that ensures on-going and enduring stewardship.

The foundation of the region’s large landscapes is its politically-protected lands; its national parks, forests, and the like. While these public lands are vital to the region’s long-term ecological health, because their boundaries are man-made and often arbitrary, the simple reality is that they will always face some degree of political threat. The best way of addressing this threat is for individuals and local communities to become champions for their surrounding public lands, actively valuing and taking part in their long-term preservation.

Since 2000, the population of the Greater Yellowstone Ecosystem (GYE) has grown more than twice as fast as the nation as a whole. As this growth occurs, wildlife populations searching for new habitat/territories may increasingly find conflict with humans. Preserving undeveloped wild lands clearly remains a priority, but supporting long-term wildlife migrations also requires the active cooperation of private landowners and the lands they steward. To complement their efforts, we also need to engage and link together the area’s agencies, organizations, governments and communities, all with the goal of making connectivity a guiding principal of living in the GYE.

Why do this? Because preserving large landscapes is necessary if we want to ensure the long-term survival of wildlife. And not just the region’s iconic migratory and wide-ranging wildlife, but also the countless species of birds, mammals, amphibians, snakes, plants, trees, flowers and insects which make the Greater Yellowstone region the largest generally-intact ecosystem in the lower 48 states.

OUR PERFORMANCE

If we want to assess our performance in preserving our ecosystem’s flora, fauna, and effective connectivity, we can start with the excellent extant data on the wide-ranging movements of many key species throughout the region. Overlaying those migration maps with vital watersheds and habitat zones can help us understand the contours of larger landscapes, and with luck take steps to ensure their long-term preservation.

Other quantitative tools also lend themselves to measuring connectivity, ecosystem health, and, by extension, how well we are doing in pursuing our conservation goals.

For example, assume that a healthy human relationship with a landscape is a relationship that does not harm or otherwise impede that ecosystem’s health. By extension, the inverse is true; i.e., if humans increasingly come into conflict with wildlife or degrade habitat, that is “poor performance.”

META-ISSUES

How might we assess that? One key indicator currently being measured is human-animal conflicts. The Wyoming Game & Fish Department maintains a database of such conflicts across the state. In 2017, 107 large carnivore conflicts were reported in the Jackson region, an average of over two per week. Historically, this is about par for our area.

What are such conflicts? One example is when a bear or mountain lion is attracted to a backyard because food was left out. Such a situation is potentially dangerous for humans, and if it occurs repeatedly can become quite dangerous for the animal. Why? Because at best authorities will remove the animal from the area, and at worst will euthanize it. All this because the animal is simply following its instinct to search for food in its habitat.


While our homes and communities can be designed to minimize conflicts with wildlife, many other conflicts occur well out of sight. For example, migrating animals face many barriers within their migration corridors. Fences and roads can sever both migration routes and vital “stopover” areas where animals rest and forage, creating fragmented and isolated habitats that threaten many species’ long-term resilience. In the Tetons region, we have made some progress to address this problem by removing or improving fences, as well as edu-

cating the public about the impacts of highways on wildlife movement. We are even re-connecting habitats with the introduction of wildlife crossing structures.

By removing or modifying fences that currently present barriers to wildlife movement, landowners, agencies, and private citizens are helping reduce stress on migrating wildlife. In so doing, they are helping ensure the conservation of historic migrations that will sustain populations of elk, pronghorn, moose, bighorn sheep, bison, and mule deer into the future. These efforts also simultaneously support the wide-ranging distribution of large carnivores such as grizzly bears, wolves, mountain lions, wolverines, and other predator species.

Expanding efforts to reduce human-wildlife conflict can also result in a number of complementary benefits, including:

- Improving corridor permeability for wildlife migration,
- Increasing ecological connectivity while connecting people to the natural landscapes they inhabit,
- Addressing regional conservation challenges by replicating and sharing models and resources,
- Building new constituencies of advocates for large landscape conservation,



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- Catalyzing and coordinating other regional partnerships, and
- Implementing scientifically-driven actions on the ground.

REASONS FOR OPTIMISM

There has been a surge in public interest in long-distance migrations, giving new purpose and importance to on-the-ground work in migration corridors. While some elements of large landscape conservation are more challenging to address, removing fences and other barriers within migration corridors can not only protect the integrity of migration routes, but reinforce a community's land ethic. A hands-on approach by an engaged and committed community may help ensure the enduring conservation model necessary for long-term protection of the region's ecosystem.

An additional reason for optimism is the rapid growth of citizen science. Citizen science encourages both individual and collective participation in a landscape, engaging and connecting people with both the landscape and each other. It also contributes valuable data to inform local decision-making, while building communities of advocates.

A larger benefit occurs when groups of citizen scientists in geographically separated but ecologically connected communities connect with each other. Those bonds can solidify the systems to support landscape-scale actions. When multiple communities within the GYE collect and share data on all species, our conservation-related efforts will become stronger still as we broaden and more deeply connect the interactions between citizen scientists in different communities.

Better still, engaging the citizens of any community to participate in the collection and analysis of ecosystem-related data not only strengthens a collective land ethic, but can also help further connect ecosystems by transcending political boundaries. This could help with migration corridor protection as "migration sister cities" maintain and share data, allowing all involved to paint a complete picture of how wildlife utilize a regional landscape. These data can then inform future land management decisions while building stronger alliances of conservationists. Recorded observations can also be used to tell larger stories, contributing directly toward greater scientific awareness.

These hands-on efforts inspire optimism by highlighting common values. Communities connecting around wildlife can help to bridge social divides, weaving residents and visitors alike into a supporting fabric that sustains wildlife. In turn, as each community weaves its own piece of fabric, each can be stitched into a larger tapestry spanning the larger landscape that is the region's ecosystem. The more tightly the region's people and landscape are connected in this way, the brighter the future for the entire GYE.



ABOUT THE AUTHOR Jon Mobeck is Executive Director of the Jackson Hole Wildlife Foundation (JHWF), where he works with public agencies, private citizens and other organizations to promote ways for communities to exist compatibly with wildlife. JHWF's hands-on work encourages local participation at many levels, advancing a land ethic that values and acts to preserve landscape permeability, while also engaging citizens in data collection to increase local knowledge and reduce conflicts with wildlife. Prior to directing JHWF, Jon was Director of Partnerships with the WILD Foundation in Boulder, Colorado – an organization dedicated to connecting people, wilderness, and wildlife globally. He contributed to the Jackson Hole conservation community with The Murie Center from 2009-2014, serving as Executive Director at the historic Murie Ranch from 2012-2014.

He can be reached at jon@jhwildlife.org

KEY TAKEAWAYS

The connectivity between large landscapes is vital to the region's large-scale ecological health.

To advance connectivity, it is critical to educate and actively involve residents about how both they and wildlife use the region's lands, both private and public.

A variety of data-based tools exist for measuring how well residents are living compatibly with the region's wildlife, most notably human-wildlife conflicts.

SUGGESTED NEXT STEPS

Improve structures that unite the GYE's communities; facilitate citizen-led data collection across "migration sister cities" to supplement ongoing scientific research.

Improve corridor permeability through direct fence and roadway barrier mitigation and community-driven private lands stewardship incentives.

Expand and publicize recording and monitoring of all types of human-wildlife conflicts in GYE communities.