# THE LANDSCAPE SPECIES APPROACH – A TOOL FOR SITE-BASED CONSERVATION

*"The conservation of landscape species will help maintain the biodiversity and integrity of wild lands."*

## Through the Eyes of Wildlife

The Wildlife Conservation Society's Living Landscapes Program looks through the eyes of wildlife to define the boundaries of landscapes essential to wildlife conservation. Where we may see a continuous block of forest, an elephant perceives a complex matrix of food, water sites and migratory paths. Only by looking through the eyes of animals, by understanding their needs, can we define conservation lands that will ensure a future for wildlife in an increasingly human-influenced landscape. We call this the Landscape Species Approach, a cornerstone of the WCS Living Landscapes program.

## The Big Picture

The Landscape Species Approach is designed to identify the needs of key animal species, following them beyond political or ecological borders, to develop better ways for people and wildlife to share the earth's living landscapes. Conservation focused solely within the limits of national parks, or community forests, or trophy-hunting conservancies, often does not succeed because wildlife, ecological processes, and human resource-uses often spill across these borders. Regardless of how large or small a protected area may be, the plants and animals it contains are often threatened either directly or indirectly by human resource uses, even when these uses occur outside reserve boundaries. Management of protected areas cannot therefore occur in isolation from the surrounding human-dominated landscape, but must take into account where and how human activities conflict with biodiversity conservation, and where conservation adversely affects human welfare.

## Key concepts:

- **Landscape species define their worlds.** Landscape species use large, diverse areas and have significant impact on the structure and function of natural ecosystems. Their habitat requirements in time and space make them particularly vulnerable to the land-use and resource harvesting practices of people.

- **The needs of landscape species help shape conservation action.** The Landscape Species Approach is a wildlife-based strategy to define ecologically meaningful management areas, identify where and why human-resource conservation conflicts occur, target conservation investments to curb or resolve such conflicts, monitor investment effectiveness, and adapt investment to changing conditions over time.

- **When we conserve landscape species, we conserve landscapes rich with wildlife.** By meeting the habitat needs of, and reducing threats to, a suite of landscape species we expect to better maintain the biodiversity and ecological integrity of the wild landscapes within which they reside.

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## The Significance of Landscape Species

Though some plants and animals are tolerant of or even thrive on human disturbance, many more are not, and even very limited use by humans places them at risk of extermination. Animals with large home ranges and varied habitat requirements are often most prone to local extinction. They are vulnerable to habitat loss, tend to encounter and conflict with humans most often, and are generally found at low densities. Moreover, these species often play important ecological roles, and their disappearance risks fundamental and far reaching changes in ecosystem structure and function. As a result, these 'landscape species' are likely to serve as effective conservation umbrellas.

We argue that by meeting the diverse and extensive habitat needs of landscape species, and by minimizing direct or indirect threats to their survival, we will ensure their long term persistence. By so doing, we will address factors that threaten many other plants and animals that occupy the same habitats, rely on the same ecological processes, and are affected by the same human activities.

A Landscape Species Approach allows us to define the conservation landscape based on the ecological needs of wildlife and the geographic location and severity of human-wildlife conflicts. In this way, priorities for conservation are set by the resource requirements of landscape species, rather than the location of political, protected area, or other land-use boundaries.

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## A System for Success

Defining the conservation landscape required to meet the diverse habitat needs of a suite of landscape species that in combination, depend on the full range of major habitat types within a wild area, provides the basis for a strong, focused, scientifically-based approach to biological conservation at the site-level. Moreover, by evaluating the needs of a complementary set of landscape species, we can explicitly assess threats to their long-term persistence and set priorities for conservation actions to avoid or mitigate key conflicts with people.

To minimize clashes between people and animals, we must identify where and why human and wildlife needs intersect in time and space. This requires that we gather information in the area, understand where and how people use the land and natural resources, and characterize the habitat use requirements of landscape species. To take action to minimize key conflicts between wildlife and people we must work closely with resource users, civil society organizations, private sector companies, and public sector agencies to develop the constituency and capacity for wildlife conservation.

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## Program Steps

1. Select the **wildland site**, based on the results of global and regional conservation priority setting efforts (e.g., species ranges, eco-regions, hotspots, and/or critical sites)
2. Select a **suite of Landscape Species** for the site which, as individuals and/or populations:
   a. Require a large area to meet ecological needs
   b. Rely on a heterogeneous array of habitats
   c. Are threatened by human resource-use practices
   d. Play important roles in ecosystem structure and function
   e. Are culturally and/or economically significant, and
   f. In combination with other selected species, constitute a complementary conservation umbrella
3. Define the **biological landscape:**
   a. Map the spatial patterning of resource-use by each landscape species population over time
   b. Describe a landscape that contains sufficient resources for the persistence of a healthy, functioning population of each landscape species
4. Define the **human landscape:**
   a. Map the pattern and intensity of human land and resource use practices that occur within, or affect, the area defined by the biological landscape
5. Examine the intersection of the human and biological landscapes, and identify the **key conflicts** that adversely affect landscape species and other wildlife they represent
6. Focus conservation actions on avoiding or mitigating key conflicts
7. Monitor the effectiveness of our conservation actions and changes in threats to wildlife and wildlands conservation

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## What do we need to implement the approach?

- An understanding of the biological requirements and ecological roles of the landscape species

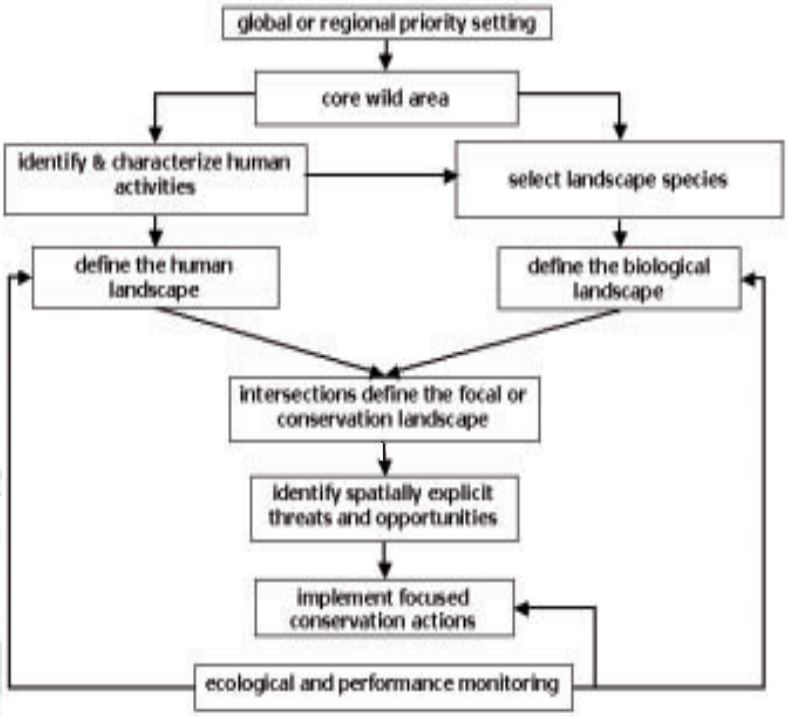
- Maps that characterize the distribution and abundance of landscape species habitats and resources within and beyond the wildland site

- Maps that characterize the spatial pattern and, where possible, intensity of human land use practices that affect wildland species

- An understanding of the causes and consequences of human-wildlife conflicts

- Personnel and financial resources sufficient to implement activities to curb or halt human-wildlife conflicts

- Cost-effective tools to monitor progress toward halting human-wildlife conflicts and achieving conservation objectives




**Conceptual diagram of the Landscape Species Approach**

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## Our Goal: Effective Conservation

Too often in the past, conservation efforts have focused on mitigating short-term threats to wildlife. However, this fails to ensure that the size, structure and quality of the landscape are sufficient to meet the ecological needs of wildlife species in the long-term. Spending scarce funds to reduce threats to wildlife within a landscape without the requisite habitat is a wasted investment, as the population is unlikely to persist even if the direct and immediate threats are removed.

The Landscape Species Approach forces us to be explicit about what we want to conserve, and to define the minimum conditions that must be retained or attained to declare conservation success. Meeting the habitat needs of, and reducing threats to, a suite of landscape species will conserve the full range of habitat, plants and animals within the wildlands in which they reside. Being explicit about the habitat needs of, and threats to landscape species allows us to set specific targets for conservation, allowing our progress can be monitored and the success of investments measured.

This approach provides an explicit biological vision for targeting conservation investments within a site. By focusing conservation efforts on a suite of wildlife species that have diverse and complementary habitat requirements, we can ensure that not only the full range of habitats is maintained at an appropriate scale, so too are the connections between these essential habitat patches. Lastly, by defining the conservation landscape to meet the needs of healthy, functioning populations of wildlife, this WCS approach sets a higher standard for conservation.

## Who is the Bulletin for?

The Bulletin is an adaptive management tool for WCS Living Landscapes Program staff, an action-research learning tool for conservation practitioners and donors, and an evolving, transparent record of Program progress for other WCS staff, donors, and the broader conservation community.

### Upcoming Bulletins:

- What is a Landscape Species?
- Selecting Landscape Species
- Developing a Monitoring System
- Managing Wildlife Use
- Community-based Wildlife Conservation
- NGO/Private Sector Partnerships

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