WILDLIFE HABITAT CONNECTIVITY AND CONSERVATION

Fact Sheet #1

All wildlife species rely on the ability to move throughout the landscape to complete their life cycles. During different parts of the day, season, or year, wildlife must move to access food and water, shelter, opportunities to mate, and favorable sites for raising young. The routes they use to make these movements can span anywhere from a small patch of forest to crossing multiple countries. Human and natural changes to the landscape can affect the ability of wildlife to move by adding obstacles, inducing changes in their behavior, impacting critical migration stopover sites, and increasing habitat fragmentation. Conserving these routes and maintaining habitat connectivity is important for the persistence of wildlife populations and for landscape health.

Background

Connectivity, the extent to which the landscape facilitates movement, is a major component of wildlife conservation. Connectivity allows wildlife to move throughout the environment to access important resources, helps maintain genetic diversity, and promotes persistence in increasingly fragmented landscapes. Connected habitats also help wildlife to maintain resilience and adapt in response to extreme events, such as wildfires, and to changing climate conditions.

Areas that promote wildlife connectivity are referred to in scientific literature, the media, and in policy by many terms—corridors, connected habitats, stepping stones, pathways, linkages, and landscape networks, among others. The use of one term over another depends on context, but the term “corridors” is becoming increasingly prevalent. While “corridors” traditionally connotes discrete, linear areas, the term is now being used more generally to describe areas of the landscape, or landscape components, that facilitate wildlife movement, including broader areas with more diffuse movement. The term corridors does not, in the context of this document, refer to politically designated corridors, but rather areas of the landscape that wildlife use for migration, dispersal, and other types of daily and seasonal movements to access key resources.

Corridors can range in scale, composition, and structure. For example, urban greenways support local movement of some species, helping connect open spaces in cities and towns. Other corridors provide connectivity across ecological gradients. In the Western United States, species like mule deer often make use of migration corridors, traveling long distances each year following the same pathways between high elevation summer ranges and low elevation winter ranges each spring and fall.

Connectivity Conservation

Strategies for conserving connectivity for wildlife can take two forms: 1) Conserving habitats that facilitate wildlife movement, and 2) mitigating features that impede wildlife movement.

Conserving habitats that facilitate wildlife movement: Identification of corridors is a data-driven process, based on examination of species-specific habitat needs and movement requirements, or by using detailed movement data collected with Global Positioning System (GPS) technology to identify pathways used by individual animals. While prioritization is often given to areas identified from fine-scale movement data, other approaches can aid in management where more robust datasets do not exist. For example, an alternative approach when movement pathways are unknown is to delineate corridors based on contiguous natural lands, under the assumption that these large areas are likely to support movements for a variety of species. Once identified, efforts to restore, enhance, and/or protect these areas can be implemented to ensure connectivity is maintained.

Corridors will often encompass multiple jurisdictions. Land can be owned or managed by a diversity of entities with differing priorities and goals, including local, state or provincial, or federal governments; sovereign tribal nations; private individuals; commercial enterprises; or nongovernmental organizations. Diverse land ownerships require that effective habitat conservation be broad-based and collaborative, utilizing a variety of conservation measures (e.g., voluntary conservation easements, leasing stipulations, habitat restoration efforts, etc.). There is a significant, voluntary role for private landowners managing working landscapes, which often help provide important habitat for wildlife movement.

Mitigating features that affect wildlife movement: Habitat in the West is becoming increasingly fragmented due to multiple factors including larger, more frequent, and more intense wildfires; increasing prevalence of invasive species; prolonged drought; and human activity. Human developments, in the form of infrastructure (e.g., roads, railways, fencing, transmission lines, urban and exurban areas, oil and gas wells, solar and wind facilities, etc.) and industry (e.g., surface mining, agriculture, timber harvest, etc.) can fragment wildlife habitat. These same developments can result in sensory stressors that affect the willingness of an animal to use an area, such as noise and lights from vehicles, trains, energy extraction and generation operations, and various activities associated with facilities. Wildlife connectivity can be supported by avoiding, removing, or modifying the obstacles that inhibit movements particularly to the point of creating barriers. For example, road crossing structures can effectively lessen the barrier effect of roadways, permitting wildlife movement across high-traffic areas and reducing wildlife-vehicle collisions. Fence alterations can help reduce entanglement and permit wildlife passage under or over fences. Timing restrictions that limit human activity during migration/movement events can allow animals to use an area without being disturbed. Where wildlife corridors have been identified, proposed developments can be sited to avoid critical areas.

Summary

Wildlife are becoming increasingly isolated in fragments of natural habitat surrounded by human developments. Areas of the landscape that facilitate wildlife movement, often referred to as “corridors”, are a critical component of wildlife conservation. Identifying and maintaining important habitat for wildlife movement helps maintain connectivity and biodiversity, allows for wildlife populations and species to be resilient and adapt to changing landscapes, and allows wildlife to fulfil their daily, seasonal, and life cycle needs. Habitat requirements often vary among species, so the scale, structure, and components of corridors may differ based on species needs. Effective corridor conservation requires identification and protection of areas that both facilitate connectivity and mitigate barriers to movement. For many species, corridors will span multiple jurisdictions, necessitating broad-based collaboration and coordination among stakeholders.