

Biodiversity and Ecosystems

Species of Common Conservation Concern

Key Findings

- North America's species of common conservation concern are a group of migratory, transboundary and endemic species that Canada, Mexico, and the United States have identified from among the continent's great wealth of wild flora and fauna as requiring cooperative attention for their effective conservation.
- North America is subject to pressures that affect the conservation of these species—among them, climate change, land use and habitat conversion, invasive species and pollution.
- Across North America, almost 1,600 species are critically endangered, endangered or vulnerable. The terrestrial and marine species of common conservation concern are a small but important sample of birds, mammals and reptiles selected for special conservation attention by the three countries.
- Some species have experienced population increases, while others are still declining in numbers. Although the status of individual species is assessed periodically, a North American trend indicator for this group as a whole is not available.

Species of common conservation concern are a group of North American migratory, transboundary and endemic species. As charismatic species, they were chosen for their ability to attract public attention and garner conservation resources. Conserving these species and their habitats requires regional cooperation. Successful conservation of these species will also have benefits for other species.

What Is the Environmental Issue?

North America's species of common conservation concern are a group of species selected from among North America's great wealth of wild flora and fauna for special attention. Most of these species use or travel through a series of different habitats throughout North America, and thus can only be protected through the effective collaboration and action of multiple stakeholders.

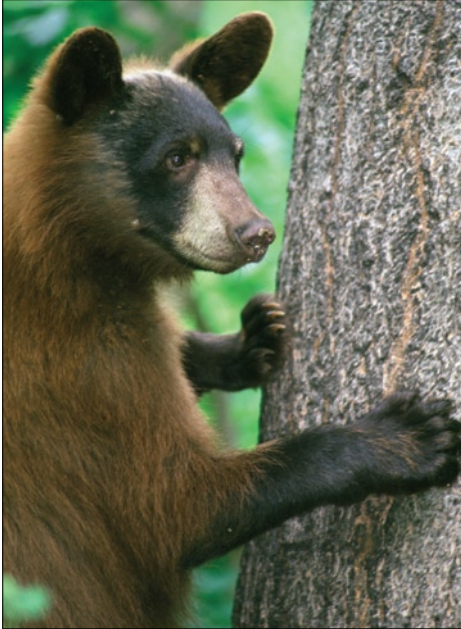
Canada, Mexico and the United States share ecosystems that are home to species that move freely across their national borders. With that in mind, experts and representatives

of the three countries' federal wildlife services compiled a list of species whose conservation is of common concern and would require a regional approach. Priority was given to transboundary or migratory bird and mammal species that are endangered or threatened in one or more countries, extinct in at least one country, or warrant special concern, and to those likely to demonstrate the importance of trilateral or bilateral cooperation (see box for a list of the land species selected).

In the selection process for marine species, priority was given to transboundary or migratory species that are at high risk of extinction



Golden-cheeked warbler, breeding adult male. Photo: Gene Nieminen, USFWS-NCTC.



American black bear. Photo: Steve Maslowski.



Black-tailed prairie dog.

because of current status or trends, inherent natural vulnerability or susceptibility to anthropogenic threats; are ecologically significant; are officially listed as being of conservation concern by one of the three North American countries, by the World Conservation Union or by the Convention on International Trade in Endangered Species; are capable of recovery or management; and have a high potential for public engagement. The list finally developed by the country teams focused on three taxonomic groups: marine mammals, seabirds and sea turtles (see box).

Migratory and transboundary species use or travel through a series of habitats in

North America. Because of the large-scale migratory patterns and transboundary nature of these species, they depend on the continued availability of breeding and feeding habitats, as well as the important movement corridors and staging areas along the migratory routes and staging areas along the migratory routes linking the breeding and foraging grounds. The survival of many land and marine species of common conservation concern depends on the existence of ecosystems that are relatively intact. Changes to their status may point to deeper problems of biodiversity.

Why Is This Issue Important to North America?

Addressing the needs of these species requires paying attention to the root causes of biodiversity loss, especially landscape change and habitat loss on land and incidental take and habitat damage in the marine environment. The recovery of species that are migratory or have transboundary ranges is difficult or impossible without cooperation among the affected countries. Even endemic species may be affected by pressures originating outside the host country.

Categories of Species of Concern

The North American species of common conservation concern are a small group when compared with the almost 1,600 species that are critically endangered, endangered or vulnerable in North America (see graph), but they are important nevertheless. They include ecologically important species, flagship species, umbrella

Terrestrial Species of Common Conservation Concern

Birds

- Burrowing owl** (*Athene cunicularia*)
- California condor** (*Gymnogyps californianus*)
- Ferruginous hawk** (*Buteo regalis*)
- Golden-cheeked warbler** (*Dendroica chrysoparia*)
- Loggerhead shrike** (*Lanius ludovicianus*)
- Mexican spotted owl** (*Strix occidentalis lucida*)
- Mountain plover** (*Charadrius montanus*)
- Northern spotted owl** (*Strix occidentalis caurina*)
- Peregrine falcon** (*Falco peregrinus*)
- Piping plover** (*Charadrius melodus*)
- Whooping crane** (*Grus americana*)

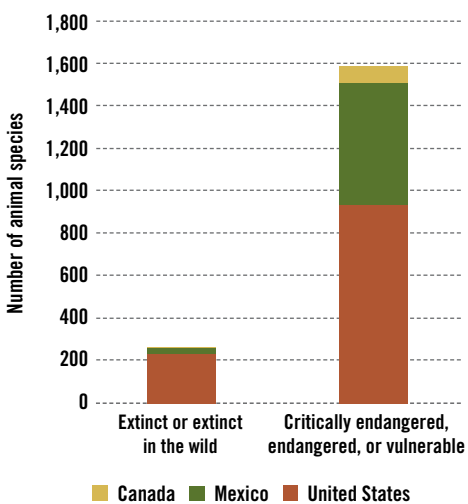
Mammals

- Black bear** (*Ursus americanus*)
- Black-tailed prairie dog** (*Cynomys ludovicianus*)
- Gray wolf** (*Canis lupus*)
- Lesser long-nosed bat** (*Leptonycteris curasoae yerbabuena*)
- Mexican long-nosed bat** (*Leptonycteris nivalis*)
- Sonoran pronghorn** (*Antilocapra americana sonoriensis*)

species, keystone species and indicator species, as well as species of taxonomic rarity and those having a high percentage of the global population located in North America.

Flagship species represent a wide range of taxa, different levels of risk and wide geographic spread. In essence, most are charismatic species—a trait that should help galvanize public attention and garner conservation resources. An example is the sea otter, one of the smallest marine mammals. Its captivating image appears on a variety of products from t-shirts to mouse pads and is well known to the general public. Another example is the vaquita, a small porpoise endemic to the northern Gulf of California, Mexico. The vaquita is threatened primarily by the fishing gill nets used to catch fish and shrimp that are consumed domestically and exported across North America.

Species in jeopardy in North America



Source: 2007 IUCN Red List of Endangered Species.



Marine Species of Common Conservation Concern

Marine mammals

Blue whale (*Balaenoptera musculus*)

Gray whale (*Eschrichtius robustus*)

Guadalupe fur seal

(*Arctocephalus townsendi*)

Humpback whale

(*Megaptera novaeangliae*)

Killer whale (*Orcinus orca*)

Right whale

(*Eubalaena glacialis* and *Eubalaena japonica*)

Sea otter (*Enhydra lutris*)

Vaquita (*Phocoena sinus*)

Seabirds

Pink-footed shearwater

(*Puffinus creatopus*)

Short-tailed albatross (*Phoebastria albatrus*)

Xantus' murrelet

(*Synthlibirampus hypoleucus*)

Sea turtles

East Pacific green turtle

(*Chelonia mydas agassizii*)

Hawksbill turtle (*Eretmochelys imbricata*)

Kemp's Ridley turtle (*Lepidochelys kempii*)

Leatherback turtle (*Dermochelys coriacea*)

Loggerhead turtle (*Caretta caretta*)

Umbrella species are those whose effective conservation will result in the protection of many other species that share the same habitat. For highly migratory animals such as the leatherback turtle, hawksbill turtle, loggerhead turtle, right whale, gray whale, pink-footed shearwater, short-tailed albatross and whooping crane, protection of umbrella species means protecting a whole suite of linked habitats—and the myriad organisms they support.

Keystone species play a pivotal ecological role in maintaining the biological diversity and structure of the food web. For example, removal of the sea otter would cause cascading effects that ultimately would result in the loss of kelp forests and associated communities. The hawksbill turtle also plays a keystone role—preventing the domination of the reefs by fast-spreading sponges. For keystone species, the



Two Kemp's ridley hatchlings, Padre Island, Texas, USA. Photo: NPS, Padre Island National Seashore.



Pink-footed shearwater. Photo: Hadoram Shirihai.

The survival of many land and marine species of common conservation concern depends on the existence of ecosystems that are relatively intact.

risk of extinction implies broader community-level consequences.

Species of common conservation concern may also act as *indicators* or biological barometers of how well or badly their host ecosystems are faring. Such is the case for the grasslands, a highly modified ecosystem under extreme duress, where a majority of the terrestrial species of concern make their home.

What Are the Linkages to Other North American Environmental Issues?

North America is subject to natural and anthropogenic pressures that affect the conservation of these and other species.

Human Use of Terrestrial and Marine Ecosystems

The detrimental effects of changes in land use and habitat fragmentation on animal populations are well known. The destruction of land habitat may stem from factors such as conversion of natural habitat to agricul-

tural or urban development, physical modification of rivers or water withdrawal from rivers. Habitat loss also occurs in coastal and marine systems. For example, trawling of the seabed can significantly reduce the diversity of marine habitats, and destructive fishing and coastal development can lead to losses of coral reefs. When habitat is lost, plant species and the associated community of animals whose habitat is largely determined by the composition of the native plant communities become extinct. Even more widespread than total habitat loss is habitat fragmentation. The smaller pieces of the original habitat are not large enough to maintain viable populations of some species.

Invasive Species

After habitat destruction and fragmentation, the introduction of invasive species is regarded as the greatest threat to the continuity of biodiversity. Invasive species compete with native species primarily for space and food, and

the vulnerability of natural ecosystems to fire, flood and other natural phenomena is altered if the composition of native species is disturbed. Invasive species also propagate disease and disturb natural ecosystem processes. The diverse geography of North America allows invasive species from almost anywhere to find a hospitable place in some part of the region, with ecosystems ranging from Arctic tundra, tropical coral reefs and deserts to rain forests and freshwater rivers and lakes.

Climate Change

Climate change is expected to intensify habitat disturbance in North America. A greater number of disturbances are likely to enable the proliferation of invasive species and disrupt ecosystem services. Over time, species will respond to the climatic pressures by moving north and to higher elevations in search of more acceptable habitats, thereby rearranging North American ecosystems. From the tropical jungles of Mexico to the Arctic regions of Canada and the United States, the structure, function and services of ecosystems will change in response to the various capacities of species to undertake such range shifts and from the constraints imposed by development, habitat fragmentation, invasive species and broken ecological connections.

Pollution

Certain threats to biodiversity, especially those that undermine ecosystem integrity in ways not easily seen, are difficult to quantify. For example, it is known that pollution affects the hawksbill turtle. Pesticides, heavy metals and PCBs have been detected in turtles and eggs, and oil spills harm the animal's respiration, skin, blood chemistry and salt gland functions. Like other marine turtles, hawksbills eat a wide variety of debris, including plastic bags, packing peanuts, tar balls, balloons and plastic pellets. Even at low levels of ingestion, this debris can interfere with metabolism and block the digestive system. Toxic byproducts can also be absorbed. The exact impact of pollution on this and other species is difficult to measure because the effects of specific pollutants at varying levels on the health of exposed species are unknown. 🦋

Case Study – Burrowing Owl



Burrowing owl.

The burrowing owl (*Athene cunicularia*) is a bird with resident and migrant populations alike in Canada, Mexico and the United States (see photo). Northern populations of the burrowing owl migrate south during winter, spending the season in Mexican territory and the southern United States (see map). The species prefers grasslands, desert zones and open areas. One distinctive characteristic of this bird is that it nests in burrows it digs itself, or in burrows dug by mammals such as prairie dogs, gophers and ground squirrels. These holes not only provide a place to nest, but also protect against wind, rain, sun and predators.

Burrowing owl populations have fallen throughout Canada and the United States; Mexico does not have sufficient data to determine that country's trends. In Canada, the situation of the burrowing owl is critical—it faces possible extinction.

Intensive land use—particularly conversion of grasslands to farming—is thought to be an important factor in the drop in the burrowing owl population. Prairie dog and

Regions populated by the burrowing owl



Source: NatureServe.

rabbit eradication programs may be another. Intensified land use has led to the loss and overall fragmentation of nesting grounds. Fragmentation hinders the owl's ability to find a mate, and it appears to interfere with juvenile dispersal as well. Other factors underlying population decline include urban development, pesticide use and invasive grass species that change grassland physiognomy. In Canada, over 75 percent of the prairies have been cultivated, and much of the remaining grasslands have been altered by human activities. Problems along the burrowing owl's migration routes and in the wintering grounds may be contributing to higher species mortality as well.