

## **Executive Summary - Status Survey and Conservation Action Plan: Rodent**

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Rodents are the most numerous, widespread, and diverse group of mammals on Earth. Although most rodents do not enjoy a positive reputation as charismatic creatures, they make up a critical link in many food chains, and have an enormous influence on many terrestrial ecosystems by virtue of their numbers and variety. An ecosystem approach should emphasize the important ecological roles occupied by rodents. Rodents are important in soil aeration, soil fertility, and penetration of ground water into the soil (pocket gophers); as prey for furbearers and predatory birds, as keystone species supporting entire carnivore food webs (ground squirrels); and as keystone species supporting up to 170 associated species (prairie dogs). They play an integral role in forest health through their relationships with mycorrhizal fungi (chipmunks, voles, flying squirrels).

In many cases, conservation of more popular species depends first and foremost on preservation of the rodent community that sustains them. Rodent species are often highly adapted to live in a narrowly defined habitat, and the diversity of rodents reflects the diversity of available habitats. The wealth of knowledge about rodents and their accessibility for research make them ideal candidates as indicators of the status of many terrestrial ecosystems.

Rodent conservation must be a concern of every state, province, and territory in North America. Much of eastern and central North America has suffered extensive habitat destruction in the past, and populations of native rodents survive in pockets of remaining habitat. Other regions, particularly California and Florida, are currently under siege from agricultural and urban development and introduction of exotic species. Finally, more remote regions, such as northern Canada and Alaska, must be surveyed to provide a more precise view of natural ecosystems in order to mitigate anticipated human impacts.

This is the first comprehensive treatment of North American rodents of conservation concern. This Action Plan summarizes the rodent fauna of North America (north of Mexico and including Greenland), and provides available information on every rodent taxon that recently has been considered to be of conservation concern by state, provincial, federal, and private conservation agencies and regional experts. Taxa that are no longer valid or are secure throughout most of their range (47 species and 68 subspecies) are set apart from those of conservation concern (34 species and 147 subspecies of concern), which are assigned to levels of vulnerability based on the 1994 IUCN Red List criteria. We present information on the classification, distribution, threats, current actions, and conservation needs of 168 taxa of 86 species of rodents in North America. Of these, eight subspecies are Extinct, ten species and 48 subspecies are threatened (Critically Endangered, Endangered, or Vulnerable), 17 species and 42 subspecies are at Lower Risk (conservation dependent or near threatened), and seven species and 49 subspecies do not have sufficient data to make a judgment (Data Deficient). One species and 36 subspecies are probably inseparable from other, non-threatened taxa; 45 species and 12 subspecies have been considered threatened due to peripheral distribution in a particular political region, but are wide-ranging and secure

elsewhere; and studies have demonstrated that the status of one species and 20 subspecies is secure.

In nearly all cases, known threats to North American rodents are related to habitat loss and include agricultural conversion of habitat, urbanization, grazing, fire suppression, and other habitat modifications. Most of the taxa of concern have historically small geographic ranges, much of which has been adversely altered by human activities. Conservation actions are recommended for all taxa of concern, and more elaborate plans are discussed for taxa of higher conservation priority. Lack of knowledge regarding basic taxonomy, distribution, and abundance of many species indicates the need for additional basic studies, particularly modern faunal inventories, which should be a high priority in many areas.

It is imperative that the conservation actions recommended in this Action Plan be implemented immediately. Nearly one-half of North American rodent species (86 of 206) warranted inclusion in this Action Plan. Nearly one in five (39 of 206) species is threatened at the species or subspecies level. Ten species are currently threatened, five other species listed as Lower Risk (near threatened) have threatened subspecies, and 24 species of least concern have subspecies that are threatened. Another 28 species have at least one subspecies that is dependent on ongoing conservation efforts, near-threatened, or suspected of being threatened but for which data are lacking.

Our hope is that this comprehensive treatment will serve as common ground for the diverse governmental and private conservation agencies and promote active cooperation among those agencies. By using rodents to assess and monitor habitats and ecosystems, we hope to further encourage the shift from conservation strategies that target single charismatic species towards preservation and management of entire ecosystems.