

Researchers document world's mammals in crisis

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From majestic African elephants to tiny and often unappreciated rodents, mammals on Earth are in a state of crisis. One in four mammal species on Earth is being pushed to extinction, according to the Global Mammal Assessment, the most comprehensive assessment of the world's mammals.

Writing in the October 10 issue of *Science*, ("The Status of the World's Land and Marine Mammals: Diversity, Threat, and Knowledge") and unveiling a "Red List" of endangered mammal species (at the International Union for Conservation of Nature World Conservation Congress in Barcelona, Spain), the researchers who worked on the exhaustive study say that from 25 percent to 36 percent of species may be in danger of extinction.

"It is frightening that after millions and millions of years of evolution that have given rise to the biodiversity of mammals we are perched on a crisis where 25 percent of species are threatened with being lost forever," said Andrew Smith, an Arizona State University professor who played a key role in the mammalian assessment. Smith and his research assistant, Charlotte Johnson, are two of the 103 authors of the *Science* paper.

The Global Mammal Assessment was conducted by more than 1,800 scientists from more than 130 countries working under the auspices of the International Union for Conservation of Nature. It was made possible by the volunteer help of IUCN Species Survival Commission's specialist

groups and collaborations between top institutions and universities, including Arizona State University, Texas A&M University, University of Virginia, Conservation International, Sapienza Università di Roma and the Zoological Society of London.

The mammal assessment is the first comprehensive look at the health of terrestrial and marine mammals across the globe. It is a companion assessment to similar documentation of the world's amphibians, released four years ago by IUCN.

"Mammals are important because they play key roles in ecosystems and provide important benefits to humans," Smith explained. "If you lose a mammal, you often are in danger of losing many other species."

The assessment shows that at least 1,141 of the 5,487 mammals on Earth are known to be threatened with extinction. At least 76 mammals have become extinct since 1500. The real situation could be much worse as 836 mammals are listed as "data deficient."

The culprits driving this precarious position include habitat loss and over exploitation for terrestrial mammals, and pollution, global warming and over exploitation for marine mammals, Smith said.

"Within our lifetime hundreds of species could be lost as a result of our own actions, a frightening sign of what is happening to the ecosystems where they live," said Julia Marton-Lefevre, IUCN director general in announcing the Red List. "We must now set clear targets for the future to reverse this trend to ensure that our enduring legacy is not to wipe out many of our closest relatives."

In the *Science* article, which includes the contributions of more than 1,700 scientists, the researchers state that 188 mammals are in the highest threat category of "critically endangered," including the Iberian

Lynx (*Lynx pardinus*), which has a population of just 84 to 143 adults and has continued to decline due to a shortage of its primary prey, the European Rabbit (*Oryctolagus cuniculus*).

China's Père David's Deer (*Elaphurus davidianus*), is listed as "extinct in the wild." However, the captive and semi-captive populations have increased in recent years and it is possible that truly wild populations could be re-established soon. It may be too late, however, to save the additional 29 species that have been flagged as "critically endangered, possibly extinct" including Cuba's Little Earth Hutia (*Mesocapromys sanfelipensis*), which has not been seen in nearly 40 years.

Nearly 450 mammals have been listed as "endangered," including the Tasmanian Devil (*Sarcophilus harrisii*), after its global population declined by more than 60 percent in the last 10 years due to a fatal infectious facial cancer. The Fishing Cat (*Prionailurus viverrinus*), found in Southeast Asia, was listed as endangered due to habitat loss in wetlands. Similarly, status of the Caspian Seal (*Pusa caspica*) was moved to endangered. Its population has declined by 90 percent in the last 100 years due to unsustainable hunting and habitat degradation.

Habitat loss and degradation affect 40 percent of the world's mammals. It is most extreme in Central and South America, west, east and central Africa, Madagascar, and in south and Southeast Asia. Over harvesting is wiping out larger mammals, especially in Southeast Asia, but also in parts of Africa and South America.

The Grey-faced Sengi or Elephant-shrew (*Rhynchocyon udzungwensis*) is only known from two forests in the Udzungwa Mountains of Tanzania, both of which are protected but vulnerable to fires. The species was first described this year and has been placed in the vulnerable category.

In order to improve the current state of these mammals, Smith suggests a

few actions that could help immediately.

"Curtail the trade of endangered species," he said. "It would do an amazing amount of good for stabilizing the situation in Southeast Asia, which is a biodiversity hot spot. There also is so much needless habitat loss. Trees from too many lush tropical forests end up as coffee tables or in high-end furniture."

Conservation's role

"Our results paint a bleak picture of the global status of mammals worldwide," the authors of the Science article state. "Yet, more than simply reporting on the depressing status of the world's mammals, these Red List data can and should be used to inform strategies for addressing this crisis, for example, to identify priority species and areas for conservation.

"Further, these data can be used to indicate trends in conservation status over time," they added. "Despite the general deterioration in the status of mammals, our data also show that species recoveries are possible through targeted conservation efforts."

For example, the Black-footed Ferret (*Mustela nigripes*) moved from extinct in the wild to endangered after a successful reintroduction by the U.S. Fish and Wildlife Service into eight western states and Mexico from 1991-2008. Similarly, the Wild Horse (*Equus ferus*) moved from extinct in the wild in 1996 to critically endangered this year after successful reintroductions started in Mongolia in the early 1990s.

The African Elephant (*Loxodonta africana*) moved from vulnerable to near threatened, although its status varies considerably across its range. The move reflects the recent and ongoing population increases in major populations in southern and eastern Africa. These increases are big

enough to outweigh any decreases that may be taking place elsewhere.

"This work sets a benchmark for us to understand what is happening with biodiversity of mammals worldwide and provides a platform from which all future conservation efforts can be measured," said Smith, who initiated the database that was used to inventory the world's mammals.

"This effort hopefully will spur greater attention on the conservation of mammals and the habitats they occupy, for the benefit of all biodiversity."

Source: Arizona State University

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