

# Digital Distribution Maps of the Mammals of the Western Hemisphere

Version 1.0

by

B. D. Patterson, G. Ceballos, W. Sechrest, M. F. Tognelli, T. Brooks, L. Luna, P. Ortega, I. Salazar, and B. E. Young

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## Introduction

Habitat for mammals and other organisms is disappearing quickly from the Earth's surface due to human activity. Conservationists are in a race against time to protect remaining habitat to stem the loss of biodiversity. Critical to these conservation efforts is focusing on-the-ground actions where threatened species where found. To aid conservationists in determining where these species occur, a group of conservation organizations joined forces in 2000 to develop a digital library of the distributions of the birds and mammals of the Western Hemisphere. These organizations, NatureServe (known then as the Association for Biodiversity Information), Conservation International – Center for Applied Biodiversity Science, The Nature Conservancy – Migratory Bird Program (known then as Wings of the Americas), and World Wildlife Fund – US, later joined by Environment Canada – WILDSPACE, wanted to make these maps easily accessible to conservation planners and other interested users. They signed a Memorandum of Understanding to govern work on the project and delegated NatureServe with the primary responsibility to compile the database. Many independent scientists are also collaborating in the project. This compact disk presents one product of this collaboration—a digital map library of the distributions of the mammals of the Western Hemisphere.

## Coverage

**Western Hemisphere.** The project covers continental North, Central, and South America and associated islands, including all near shore islands in Canada and the United States, islands in the Bering Sea, and the U.S. Aleutian islands; the entire Caribbean; the Mexican islands of Guadalupe and the Revillagigedo archipelago; and the Falkland Islands. This coverage excludes Greenland, the Hawaiian Islands, and mid-Atlantic islands such as Bermuda, Tristan da Cunha, and South Georgia.

**Terrestrial Ranges only.** Because the goal of the project is to produce a tool to aid on-the-ground conservation, the maps show ranges of terrestrial species only. Conservation of marine mammals is dependent on management policies, so the geographic ranges of pelagic species is a less critical conservation issue. Also, pelagic ranges are poorly and unevenly known

throughout the hemisphere, making a balanced coverage of these ranges difficult.

**Extant and Recently Extinct Species.** Whenever data are available, the maps show ranges where species formerly occurred but are now extirpated. Note that many species have undergone range contractions, either historically or in recent years, that are not accurately recorded. We also included recently extinct species if data were available.

**Introduced Species.** To the extent that existing data allowed us, we mapped current distributions of species that have been introduced and established in the project area. Distributions of all mammals and especially introduced species are constantly changing, so data users should be aware that these maps reflect the situation at the time the data source was produced, not necessarily today's distribution.

**Species not Included.** We did not map several species for various reasons. They are:

*Canis rufis* (Red Wolf) – This species exists in the wild only as reintroduced individuals and its taxonomic status is unclear.

*Mus musculus* (House Mouse) – This introduced species is ubiquitous around human habitation.

*Lama glama* (Llama) -- This species exists only in domesticated populations.

*Lama pacos* (Alpaca) -- This species exists only in domesticated populations.

*Nelomys unicolor* (An Atlantic Tree Rat) – The geographic origin of the type specimens of this species is unclear and no extant populations are known.

## **Map Production**

To produce the maps we used existing digital maps that were available to us (see Data Contributors) and digitized maps for all remaining species and portions of ranges. We digitized by first scanning published maps and then tracing on-screen over the georeferenced scans. Some maps were digitized by eye from published maps in books and other compilations. After initial digitization, B. D. Patterson reviewed printed versions of the South American maps and we incorporated these corrections to the digital maps.

We coded all polygons and points by whether the species is still present or extinct in the location, and by the species' origin (native, introduced). The key to the codes, all technical information about the maps, and a list of references cited in the database are contained in the accompanying metadata file.

### **Data Contributors and Sources**

The source for most North American maps is Hall (1981) and Wilson and Ruff (1999). We digitized distributions of Caribbean mammals based largely on information in the Woods and Sergile (2001) volume. A major source for Mexican ranges was Ceballos and Oliva (2003). Central American mammal distributions generally follow Reid (1997). Information for South American ranges is drawn from Emmons and Feer (1997), the Eisenberg and Redford series (Eisenberg & Redford, 1989; Eisenberg & Redford, 1999; Redford & Eisenberg, 1992), Anderson (1997), Koopman (1982), Alberico et al. (2000), as well as hundreds of journal articles and other sources. The taxonomy follows B. Paterson's systematic database on Neotropical mammals and NatureServe's database on North American mammals (see [www.natureserve.org/explorer](http://www.natureserve.org/explorer)). Primate taxonomy and distribution follow A. Rylands' database of Neotropical Primates. A complete list of references can be found on an accompanying file on this CD.

### **Use and Acknowledgement of the Data**

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All products produced on any media, including but not limited to publications, databases, theses, websites, and oral presentations should acknowledge the data contributors:

“Data provided by NatureServe in collaboration with Bruce Patterson, Wes Sechrest, Marcelo Tognelli, Gerardo Ceballos, The Nature Conservancy – Migratory Bird Program, Conservation International – CABS, World Wildlife Fund – US, and Environment Canada – WILDSPACE.”

All scientific research that makes extensive use of the maps offer co-authorship to Wes Sechrest or the compiler listed for the individual maps.

The proper citation for this CD is:

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Please contact Bruce Young ([bruce\\_young@natureserve.org](mailto:bruce_young@natureserve.org)) if you are interested in using this database or any of the data contained therein in a commercial product.

### **Software Compatibility**

The shapefiles on this compact disk are compatible with ArcView 3.X software produced by the Environmental Systems Research Institute, Inc. To purchase ArcView software, check the ESRI website ([www.esri.com](http://www.esri.com)) for a distributor near you. Alternatively, you can download ArcExplorer, software that allows you to view but not modify the range maps, for free at <http://www.esri.com/software/arcexplorer/index.html>.

### **Errors and Updates**

Although we feel we did the best job possible to produce an accurate database, some errors surely remain in the data. Our knowledge of mammal distribution and taxonomy continues to improve, so some of these maps may be out of date by the time you see them. Please alert Bruce Young ([bruce\\_young@natureserve.org](mailto:bruce_young@natureserve.org)) of any errors you detect in the data or of newly published information that would serve to update the maps. We will be constantly reviewing the scientific literature to keep abreast of taxonomic and distributional changes. Updated maps will be available for download at NatureServe's website ([www.natureserve.org](http://www.natureserve.org)).

### **Disclaimer**

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### **Addresses of the Authors**

#### **Thomas Brooks**

Center for Applied Biodiversity Science  
Conservation International  
1919 M Street, NW, Suite 600  
Washington, DC 20036  
USA

#### **Gerardo Ceballos**

Laboratorio de Conservación y Manejo de Vertebrados  
Instituto de Ecología, UNAM  
Apartado Postal 70-275  
Ciudad Universitaria  
04510 México D.F.  
Mexico

**Lucía Luna**

The Field Museum  
1400 S. Lakeshore Dr  
Chicago, IL 60605-2496  
USA

*Current address:*

Museum of Zoology  
1109 Geddes Avenue  
University of Michigan  
Ann Arbor, MI 48109-1079

**Pablo Ortega**

Laboratorio de Conservación y Manejo de Vertebrados  
Instituto de Ecología, UNAM  
Apartado Postal 70-275  
Ciudad Universitaria  
04510 México D.F.  
Mexico

**Bruce D. Patterson**

Department of Zoology  
The Field Museum  
1400 S. Lakeshore Dr  
Chicago, IL 60605-2496  
USA

**Irma Salazar**

Laboratorio de Conservación y Manejo de Vertebrados  
Instituto de Ecología, UNAM  
Apartado Postal 70-275  
Ciudad Universitaria  
04510 México D.F.  
Mexico

**Wes Sechrest**

Department of Biology, Gilmer Hall  
University of Virginia  
Charlottesville, VA 22904  
USA

**Marcelo F. Tognelli**

Dept. of Wildlife, Fish, and Conservation Biology  
University of California  
Davis, CA 95616

*Current address:*

Center for Advanced Studies  
in Ecology and Biodiversity  
Pontificia Universidad Católica de Chile  
Santiago, Chile

**Bruce E. Young**

NatureServe  
Apdo. 75-5655  
Monteverde, Puntarenas  
Costa Rica