

- Nascimento FL, Catella AC and Moraes AS. 2001. Distribuição especial do tucunaré, *Cichla* sp. (Pisces, Cichlidae), peixe Amazônico introduzido no Pantanal, Brasil. Corumbá: Embrapa Pantanal. *Embrapa Pantanal Boletim de Pesquisa* 24.
- Oliveira MD. 2003. Ocorrência e impactos do Mexilhão Dourado (*Limnoperna fortunei*, Dunker 1857) no Pantanal Mato-Grossense. *Circular Técnica* 38. Embrapa Pantanal, Corumbá.
- Peres CA. 1996. Population status of white-lipped and collared peccaries in hunted and unhunted Amazonian forests. *Biological Conservation* 77: 115–123.
- Por FD. 1995. *The Pantanal of Mato Grosso* (Brazil). Kluwer Academic Publishers, Dordrecht
- Prance GT and Schaller GB. 1982. Preliminary study of some vegetation types of the Pantanal, Mato Grosso, Brazil. *Brittonia* 14: 15-46.
- Reyna-Hurtado R and Tanner GW. 2005. Habitat preferences of ungulates in hunted and nonhunted areas in the Calakmul Forest, Campeche, Mexico. *Biotropica* 37: 676–685.
- Silman MR, Terborgh JW and Kiltie RA. 2003. Population regulation of a dominant rain forest tree by a major seed predator. *Ecology* 84(2): 431–438.
- Taber AB, Doncaster CP, Neris NN and Colman FH. 1994. Ranging behavior and activity patterns of two sympatric peccaries, *Catagonus wagneri* and *Tayassu tajacu*, in the Paraguayan Chaco. *Mammalia* 58: 61-71.

---

## **The Destiny of the Neotropical Forest Architects: An Evaluation of the Distribution and Conservation Status of the White-lipped Peccaries**

*Reduced version of the executive summary prepared by Rafael Reyna-Hurtado*

This is a summary of a project that began in 2005 to evaluate and update the status of the distribution of the white-lipped peccary (*Tayassu pecari*), and the lowland tapir (*Tapirus terrestris*). Here we present a reduced version only for the evaluation process of the white-lipped peccary. The authors of all the processes, including both species, are introduced at the end of the document. The complete report is already available for the public and soon will be published in a special edition of this newsletter. To receive a PDF copy of it, please write to Andrew Taber ([taber@wildlifetrust.org](mailto:taber@wildlifetrust.org)).

This study provides range-wide information for conservation planning and a baseline against which to evaluate future changes in the species' status and distribution. It also provides an indication of ecosystem health across its ranges since the species is highly susceptible to human pressures and is useful for monitoring habitat conservation status. To undertake this survey, top peccary biologists from fourteen countries across the Neotropics provided data and contributed to the analysis and conclusions. Salient findings are outlined below.

The white-lipped peccary is one of the most ecologically and economically important mammal species of the Neotropics. It has an enormous range extending across tropical and subtropical habitats from Southern Mexico to northern Argentina. This species together with tapirs are so-called architects of ecosystems across the Neotropics because of their vital roles in structuring plant communities. White-lipped peccaries have long been key food sources for subsistence hunters throughout the region and international trade in peccary products has also been economically significant, although threatening to the species where harvesting is unsustainable. As a result of over-hunting and habitat destruction, the species is considered endangered or threatened in a number of countries, and is listed on Appendix II of CITES (Convention on International Trade in Endangered Species).

The white-lipped peccaries' historic distribution covered some 14,220,461 km<sup>2</sup>. Using direct and indirect means, this species' presence was documented at 887 localities across its range, and it was judged extinct in another 49 localities. The pool of experts was able to evaluate white-lipped peccary status in almost all of its total historic range. As of 2005 it had gone extinct in 20.5% of this area and its actual distribution had declined to 11,177,435 km<sup>2</sup>. Major range contractions were observed in Central America, Mexico, northwestern South America, northeast Brazil, and along the southern fringes of its distribution in Argentina and Brazil.

White-lipped peccary status was classified as having a low probability of survival in 20.1% of its historic range with only small isolated and scattered groups persisting. In these areas it is now unlikely to be a factor in ecological processes, making it functionally extinct even though it survives in small numbers. In 17% of its range, it was judged to be of medium probability of survival and, if trends continue, the species will likely be reduced to a low probability of long-term survival and localized extinction in these areas. White-lipped peccary populations were still broadly intact across 41.5% of their historic range.

This species' distribution incorporated 32 eco-geographical regions. Across these, 61% of its range area was found in only four: the Cerrado plus three Amazonian moist forest types. Its range has declined by 97.3% in the Catinga of northeast Brazil (739,000 km<sup>2</sup> lost) and the species is at risk, with 70% or greater range reductions in another six of the eco-geographical regions.

Of the six major habitat types in its historic range, grouping eco-geographical regions (Regiones Eco-Geográficas—REGs), 66% of the areas were in evergreen tropical and subtropical humid forest. White-lipped peccaries were also found in montane tropical and subtropical moist forest; montane grasslands; tropical and subtropical dry forests, savanna and scrublands; seasonally humid grasslands and savannas; and mangroves. Of these major habitat types it has been most impacted in the mangrove systems where it has disappeared from at least 43% of the area.

While it was historically found in 19 countries it is now extinct in El Salvador and its distribution has shrunk to less than 20% of its historic range in Mexico, Guatemala, and Costa Rica, the country where it is most at risk of extinction. Data were lacking from Panama. While Brazil remains a stronghold for this species, with its current range covering more than 7,000,000 km<sup>2</sup>, even here it has disappeared from at least 1,000,000 km<sup>2</sup>. Its probability of long-term survival at the country level is good in Peru, Bolivia, French Guyana, Guyana, Suriname, and large portions of Colombia and Venezuela (fig. 1 in Spanish text). The principal threats to the species, identified by the experts, were habitat loss and degradation, hunting, growing human population pressure, resource extraction, and ranching. The latter three are indirect threats that contribute to species loss by increasing more direct threats such as hunting. This species needs large areas with low levels of threat; 71% of its current distribution is in regions that have suffered minimal habitat alteration.

Fifty-seven Peccary Conservation Units (Unidades de Conservación para Pecarí Labiado—UCPs) were identified covering 48% of the current species' distribution (fig. 2 in Spanish text). These units varied in size from 119 km<sup>2</sup> to over 2,000,000 km<sup>2</sup>, with the largest spanning parts of the northern Amazon and Guyana Shield of Brazil, Guyana, Surinam, French Guyana, Venezuela and Colombia. Most UCPs were tiny and isolated in Central America and also in southeast Brazil. Based on a variety of criteria, 86.6% of the total UCP area was judged of high quality (Type I) distributed in 19 separate units. These are the strongholds upon which the species' long-term survival depends. Five REGs did not have any UCPs; and UCPs were either nonexistent, of low quality (Type II's), or covered small areas in Belize, Costa Rica, Panama, Honduras, and Argentina. Peccary populations were judged stable in approximately 70%, and declining in 25% of the total area of the UCPs. Of the total surface area of the UCPs, 26% were in either

strict nature reserves or national parks. However, only 20% of the area in all IUCN categories, and only 9% of the total UCP area, were judged to have effective protection.

## Discussion and conclusion

This is one of the largest distributional status data sets ever collected on such a wide-ranging species. Nevertheless, the power of the data was limited given the uneven coverage of the area by the experts. More surveys are needed to fill in knowledge gaps, particularly in poorly known regions of Brazil, Colombia, Surinam, Guyana and Peru. White-lipped peccary specific surveys are needed for all or parts of Ecuador, the Atlantic coast of Brazil, French Guyana, Venezuela, Honduras, Mexico (particularly mangroves), Nicaragua and Panama. Also, the importance of mangrove ecosystems to peccaries is not well understood, nor is their status in these habitats.

The country where white-lipped peccaries are most at risk is Costa Rica followed by Guatemala, Mexico and Panama. In contrast, in Bolivia, Colombia, Peru and Venezuela the species long-term future seemed assured as of 2005. In Brazil, while the species is in good shape in parts of the country such as the northern Amazon, it faces a likely further range reduction of as much as 40% in the near future given deforestation and fragmentation trends.

In terms of planning for the conservation of all ecological forms of white-lipped peccaries, the major habitat types and conservation units were the most realistic targets. Given the current number of species specialists and resources available, white-lipped peccary conservation planning and action at the level of the eco-geographical regions is unlikely to be practical in most cases. Also, given the country-focused structure of most conservation efforts, transnational efforts to protect and manage all different eco-types of peccaries will require significantly improved coordination.

One notable finding from the experts was that protected areas were clearly not fulfilling their functions of adequately protecting the species, nor did they provide sufficient coverage of all eco-geographic regions, major habitat types, and species conservation units. The need to improve protected area coverage, and internal management and protection at the species level, continues to be a challenge across the Neotropics. Also, to conserve the species as functional parts of ecosystem at the landscape scale, conservation efforts must also focus on communal and private lands.

This report presents specific conservation recommendations, although priorities varied from region to region, with a particular emphasis on getting more and better conservation and management information to decision makers at local, regional and national levels. As of 2005, white-lipped peccaries can't be considered endangered as a species. However the conservation glass for the species is neither half full nor half empty, and a concerted effort is needed to maintain the species as an ecologically important part of its ecosystem, as well as for its symbolic value for conservation as a natural gardener and architect of Neotropical ecosystems.

***Authors:** Andrew Taber, Silvia C. Chalukian, Mariana Altrichter, Karen Minkowski, Leonidas Lizárraga, Eric Sanderson, Damián Rumiz, Eduardo Ventincinque, Edsel Amorim Moraes, Jr, Carlos de Angelo, Miguel Antúnez, Guido Ayala, Harald Beck, Richard Bodmer, Salvador Boher B., José Luis Cartes, Soledad de Bustos, Don Eaton, Louise Emmons, Neyreda Estrada, Luiz Flamarion de Oliveira, José Fragoso, Rony Garcia, Claudia Gomez, Humberto Gómez, Alexine Keuroghlian, Karim Ledesma, Diego Lizcano, Carolina Lozano, Olga Montenegro, Nora Neris, Andrew Noss, Juan Alejandro Palacio Vieira, Agustín Paviolo, Pablo Perovic, Héctor Portillo, Jeremi Radachowsky, Rafael Reyna-Hurtado, Juliana Rodríguez Ortiz, Leo Salas, Adriana Sarmiento Duenas, Javier A Sarria Perea, Karina Schiaffino, Benoit de Thoisy, Mathias Tobler, Victor Utreras, Diego Varela, Robert B. Wallace, y Galo Zapata Ríos*