Conservation Action Network (CAN)

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A Call-to-Action to Assist in Efforts to Protect Owl Monkeys

Imminent threats to *Aotus*

Aotus lemurinus, Pance, Colombia
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There are eleven species of owl monkeys (*Aotus* spp.) ranging from Panama to Northern Argentina and, where data are available, their populations are declining and many face the risk of extinction. Five species are most at risk: *A. miconax* is Endangered and *A. brumbacki*, *A. griseimembra*, *A. lemurinus*, and *A. nancymaae* are listed as Vulnerable on the IUCN redlist. Deforestation is a major threat to *Aotus* as trees are harvested for wood and land is cleared for agriculture, cattle ranching, residential areas, mining operations, and illegal (coca) crops (Shanee et al. 2015; Maldonado & Waters 2020). In some parts of their range, they continue to be hunted for bushmeat (Méndéz-Carvajal, 2019; González-Hernández et al. *in press*).

Owl monkeys are also trapped for the wildlife trade. About 3,500 per decade have been legally traded with CITES registration permits, with many imported to the United States (Shanee et al. in review) for biomedical research as they are considered an ideal model for malarial studies and testing antimalarial drugs. They are also used for ophthalmological research (their large eyes and pupils provide excellent views of the fundus; Ogden 1994) and for research into the human immunodeficiency virus (HIV), as they are resistant to HIV-1 (Sayah et al. 2014). International trade of owl monkeys for biomedical research registered through CITES has declined over the past few decades (Shanee et al. in review). The United States is still the main importer of *Aotus*, but since 2006 the only sources reported are from breeding colonies in Peru (Shanee et al. *in review*). Despite national bans by most habitat countries on primate exports and the initiation of captive breeding programs, illegal trafficking of *Aotus* for biomedical research continues (Svennsson et al. 2016) primarily in the tri-border area of Brazil, Colombia, and Peru (Maldonado & Waters 2017; Shanee et al. in review).

"Illegal trafficking of Aotus for biomedical research continues"

The Colombian government still permits the capture of *Aotus* for use in malarial research and their subsequent release back into the wild (Maldonado and Lafon, 2017). For instance, permission was granted for the capture of 400 *A. nancymaae* and *A. vociferans* per year (2020-2022) for use by a single biomedical laboratory (Corpoamazonia 2020). These permits are promoting the Illegal trade from Peru, as Colombian nationals who reside in Peru are listed as collectors (Maldonado and Lafon 2017). Given their small size and gentle nature, owl monkeys throughout their range are also trapped for the pet trade (Cornejo et al. 2008; Svensson et al. 2016; Maldonado & Waters 2017).

Relatively little research and public attention have focused on wildlife trafficking within South America. Extrapolated data from surveyed markets in wildlife trafficking hotspots suggest that governments are likely to be underreporting the numbers of *Aotus* trafficked in these regions (Maldonado and Waters 2017; Shanee et al. *in review*).

Conservation efforts that need support

Because owl monkeys are arboreal, live in small groups, and are active at night, they could disappear from forests without notice. In addition to enforcing government regulations and international conventions, there is a need for research, education and conservation-related initiatives to prevent further population declines (Maldonado 2018). Recent efforts by non-profit organizations and field researchers aim to protect *Aotus* by helping to census and monitor current populations, establish protected areas, participate in reforestation, and promote environmental education.

Peru

Over the past 13 years, the Peru-UK-based non-profit organization ***Neotropical Primate Conservation*** (www.neoprimate.org) successfully created private and communally protected areas in Peru, helped local communities with financing, and actively trained local people in relevant technical skills (creating surveys, mapping, administration) necessary in obtaining official protected status for these areas of land. These efforts led to the creation of 10 officially recognized reserves that contain populations of *Aotus*. The majority of these protected areas are in montane forests in northern Peru, home of the endangered *A. miconax*. In lower elevation reserves, *A. nancymaae* and *A. nigriceps* are protected (Shanee 2013).

The *Neotropical Primate Conservation's* research in Peru led to the updated IUCN status of *A. miconax*, as well as new information about their ecology and behavior. *Neotropical Primate Conservation* works to identify new populations of *Aotus*, evaluate current threats, estimate population densities, and determine the effects of habitat degradation and fragmentation on parasite load and animal health. Researchers are actively involved in restoration efforts and environmental education in the local communities. Their main focus, however, is the continued fight against illegal wildlife trafficking. Their team works closely with the local authorities in the confiscation, handling and care of rescued animals. The government of Peru has now placed greater emphasis on *Aotus* conservation. For example, the Huiquilla Private Conservation Area in Amazonas (https://www.facebook.com/huiquilla.amazonas.peru/), uses *A. miconax* as its flagship species and a coordinated regional action plan for *A. miconax* has been developed.

"Over the past 4 years more than 550 social and environmental leaders across Colombia have been murdered"

Colombia

Unfortunately, promoting social and environmental justice comes at a high cost in Colombia, and during the past 4 years over 550 social and environmental leaders have been murdered, and this number continues to rise. Even a global pandemic has been unable to stop this horrific trend; the latest victim **Gonzalo Cardona Molina from ProAves Colombia was murdered on January 8, 2021.**

https://www.defensoria.gov.co/es/nube/enlosmedios/8996/Al-menos-555-l%C3%ADderes-sociales-han-sido-asesinados-entre-2016-y-2019-Defensor%C3%ADa-del-Pueblo.htm

Many continue to work towards conserving Colombia's fauna and flora, despite the risks to themselves. **Angela Maldonado** (Fundación Entropika, https://www.entropika.org/, @fentropika - Instagram), recent recipient of the **National Geographic/Buffett Award for Leadership in Conservation in Latin America** (https://www.nationalgeographic.org/events/awards/buffett/) and previous recipient of the **ASP Brumback *Aotus* Conservation Grant** (https://www.asp.org/grants/brumbackaotus/recipients.cfm), works tirelessly for Amazonian owl monkey conservation and her efforts have resulted in hunting bans implemented by Amazonian communities and investigations into the illegal trade of *Aotus* in Colombia. In addition, Maldonado's team made its first population assessment of *Aotus* at the Colombian-Peruvian border. Genetic analyses confirmed that *A. nancymaae* is distributed in the highly deforested area of Loreto, Peru, and provided evidence that monkeys had been released in Peruvian territory by a Colombian biomedical facility.

Neotropical Primate Conservation recently began surveying *A. zonalis* (IUCN listed as Data Deficient) in the Pacific coast and Darién regions of Colombia. Although *A. zonalis* is present in several sites, there are increasing threats to those populations. Researchers are carrying out educational activities in schools and providing seminars and capacity building for local communities with the hope of creating locally protected areas. Initiatives for community-based reforestation and additional field sites for longer term ecological studies have begun, but need additional support.

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In Pance, a small town within a highly biodiverse region of Colombia (Farallones, West Andes), young leaders are working to protect *A. lemurinus*. ***Fundación Monte Adentro*** (@fundacionmonteadentro) is a collective of local youths that has been mentored by environmentalists from the region.

Photos from Pance, Colombia. Left: Fundación Monte Adentro Team; Center: Colectivo @Alpajaguar, Artist @Jornicas (Instagram); Right: S. Acosta, S. Taberes, S. Evans, R. Cooper, J. Ogata, & J. Perea-Rodriguez ©A. Garcia

The group monitors and manages resources destined for the conservation of the biodiversity in this region. The group's members provide continuous monitoring of mammals for Farallones National Park and have sighted species that had not been observed locally for decades. ***Fundación Monte Adentro*** educates the local people about the value of biodiversity and the importance of respecting and conserving it. Their conservationists organized an annual festival to celebrate the presence of the owl monkeys, spectacled bears (*Tremarctos ornatus*), ocelots (*Leopardus pardalis*), coatis (*Nasau nasau*), and other local species in an effort to foster a greater local commitment to protecting wildlife. A field station is planned for development in this region, but the pandemic has slowed progress.

Panama

A. zonalis, Panama
©Eduardo Estrada

To better understand the conservation status, ecology and distribution of *A. zonalis*, which had been classified as **Data Deficient**, researchers from ***Fundación Pro-Conservación de los Primates Panameños*** (FCPP) recently estimated the population densities of *A. zonalis* in Panama (Méndez-Carvajal 2019). *A. zonalis* were confirmed near gallery forests, but in areas where land is currently being transformed and degraded. However, few local people within the region could identify the species (González-Hernández et al. 2020). Although *A. zonalis* in Panama is not typically consumed as bushmeat, it is occasionally found in the pet trade. In some areas, *Aotus* are killed due to the false belief by local people that they are "mysterious" nocturnal animals. New challenges have arisen as tourists are visiting owl monkey nests and knocking on the trees in order to wake them up and view them. This behavior interrupts their circadian activity and causes owl monkeys to eventually leave their nest. ***FCPP*** is distributing educational materials and providing talks to locals and tour guides in an effort to combat these problems.

Research with conservation implications

A. azarai, Formosa, Argentina.
Top image: ©M. Corley
Bottom: ©E. White, Owl Monkey Project

Much of our understanding of *Aotus* ecology and behavior stems from research conducted as part of the **Owl Monkey Project** (led by Eduardo Fernandez-Duque) of ***Fundación ECO*** in Formosa, Argentina (https://owlmonkeyproject.wordpress.com/fundacion-eco/). Researchers are using new technologies to better understand the biological communities in which *A. azarae* live, as well as their population genetics, and behavioral ecology. Ph.D. candidate Griette van der Heide (Univ Colorado, USA) is analyzing fruiting and flowering phenophases via remote sensing with drones and assessing trophic interactions via arboreal camera traps. Researchers with the *Owl Monkey Project* are analyzing the genetics of the population to better understand the dispersal patterns of owl monkeys. This information will help identify how natural and/or artificially fragmented areas potentially impact the genetic flow of the species. Dr. Alba Garcia de la Chica, with the support of a **National Geographic Society's Early Career Grant**, is studying competition between floaters and group residents using portable acoustic monitoring stations to passively record naturally occurring vocalizations.

The work of the *Owl Monkey Project* has further promoted the research and conservation of the biological corridors of the Humid Gran Chaco, a hot and dry region that spans parts of Paraguay, Argentina, and Brazil.

Approaching **the 25th anniversary** of the *Owl Monkey Project*, efforts are now focused on educational activities to teach students in the local schools and members of the local community about the natural habitat of the owl monkey.

Take Action! The Time to Act is Now!

- Support the actions of ***Neotropical Primate Conservation*** by making a donation. Nearly 100% of the donations assist with field-based projects. US donors can contribute by visiting (https://conservationallies.org/neotropical-primate-conservation/) where donations are tax deductible. They also accept volunteers and interns year round (both in the field and office). Additional details can be found on the website (www.neoprimate.org) or by writing to info@neoprimate.org.
- Support primate conservation in Colombia by donating to ***Fundación Monte Adentro*** by contacting Sebastian Tabares at funmonteadentro@gmail.com.
- Dr. Angela Maldonado and Dr. Christy Wolovich are currently collaborating to create an educational book about the biology and ecology of *Aotus* to be distributed to children in the Colombian-Peruvian Amazonian border. This region is the heart of illegal *Aotus* trafficking. Funds are needed to help cover the costs of printing and shipping. Please donate to the **GoFundMe** site https://www.gofundme.com/f/conservation-books-for-amazonian-children?utm_source=customer&utm_medium=copy_link&utm_campaign=p_cf+share-flow-1
- Support primate conservation efforts in Panama by donating to the ***Fundación Pro-Conservación de los Primates Panameños*** **(FCPP)** https://www.fcprimatespanama.org/ayuda.html. Donations help purchase equipment and create educational materials. FCPP is distributing bookmarks and posters about *Aotus* biology and distribution that informs local people as to how they can help protect these threatened primates.
- Support environmental education activities currently being developed by ***Fundación Eco*** (Argentina) (https://owlmonkeyproject.wordpress.com/fundacion-eco/) in collaboration with the ***Programa Biodiversidad, Áreas Protegidas y Cambio Climático (BIOARCA)***, as well as with the local NGO and cultural center **"La Mandinga"**.

Authors

Christy Wolovich, Florida Southern College, USA (cwolovich@flsouthern.edu)
Sam Shanee*, Neotropical Primate Conservation, UK-Peru-Colombia (samshanee@gmail.com)
Angela Maldonado*, Fundación Entropika, Colombia (lllugens@gmail.com)
Pedro G. Méndez-Carvajal, Fundación Pro-Conservación de los Primates Panameños (FCPP), Panama, (mendezp@fcprimatespanama.org)
Juan Pablo Perea-Rodriguez, Project *Conserve*monos, Costa Rica, WELL-PRIM Project, France (pereajp@gmail.com)
Sebastian Tabares, Fundación Monte Adentro, Colombia
Alba Garcia de la Chica, The Owl Monkey Project, Argentina (alba.delachica@gmail.com)
Siân Evans, Florida International University(sianevans@msn.com), DuMond Conservancy for Primates and Tropical Forests, USA (http://dumondconservancy.org/)

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