Global Re-introduction Perspectives: 2016

Case-studies from around the globe

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Cover photo: Clockwise starting from top-left:
i. Bolson's tortoise, USA @ Turner Endangered Species Fund
ii. Wetapunga, New Zealand @ Richard Gibson
iii. Morelos minnow, Mexico @ Topiltzin Contreras-MacBeath
iv. *Silene cambessedesii*, Spain @ Emilio Laguna
v. Tasmanian Devil, Maria Island, Tasmania @Simon DeSalis
vi. Agile frog, Jersey @ States of Jersey Department of the Environment

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Re-introduction of the giant anteater in Iberá Nature Reserve, Corrientes, Argentina

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Introduction

The giant anteater (*Myrmecophaga tridactyla*) is a widely distributed neotropical species, listed as "Vulnerable" in both the IUCN Red List of Threatened Species and the Argentinean Red List. Across its range it occupies diverse habitat types including grasslands, savannas and forests, where it feeds on ants and termites. Several authors refer to the historical presence of giant anteaters in Corrientes Province and its extinction around the middle of the 20th century due to a combination of widespread commercial/subsistence hunting and a cattle ranching tradition based on the frequent use of fires and dogs. The Iberá Nature Reserve (INR) is a 13,000 km^2 multiple use protected area that includes a diverse mosaic of marshlands, open grasslands, savannas and small forests. When INR was established in 1983, provincial park-rangers started to enforce hunting prohibitions, remnant wildlife populations recovered, and several authors proposed the re-introduction of extirpated fauna. Following this recommendation, in 2006 the government of Corrientes and CLT started the first world-wide experience aimed to restore an extinct population of giant anteaters. Within the private properties included inside INR, The Conservation Land Trust (CLT) holds 1,500 km^2 of private reserves dedicated to nature conservation and ecological restoration.

Goals

The following goals were part of the Giant Anteater Recovery Plan presented by CLT and approved by the government of Corrientes (Jiménez-Pérez, 2006):

Re-introduced anteater with cub

- Goal 1: (Long-term)
  ⇒ Establishing a self-sustainable population of giant anteaters inside INR and neighboring areas.
- Goal 2: (5 year period)
  ⇒ Establishing a population nucleus of giant anteaters with, at least, 20 individuals, which through monitoring and evaluation will help to build the methods and organizational arrangements that will lead to our long -term goal.

Success Indicators

The following indicators were also included within the original Recovery Plan (Jiménez-Pérez, 2006):

- Indicator 1: Numbers of wild anteaters living in INR, with emphasis on animals that have breed in the area, have died, have been born and have been living for more than one year.
- Indicator 2: An organizational structure that supports the re-introduction project that brings external resources (information, people, technical and financial) and that promotes permanent evaluation and improvements.
- Indicator 3: Well developed protocols and methods that will help the efficient management of all aspects within the project.

Project Summary

Feasibility: To assess habitat suitability we invited two giant anteater experts to visit different areas within INR in order to see if there were enough good areas for the species in the reserve, and to identify the best locations regarding habitats. To design a recovery plan, a participatory workshop was carried out in INR, which included experts on anteater ecology, veterinary and genetic issues, local social issues, endangered species recovery and provincial authorities. As a result of this meeting, a recovery plan was drafted and agreed amongst the attendants. The plan identified Rincón del Socorro/Iberá (30,000 ha) and San Alonso (10,000 ha) reserves as the first and second sites to re-introduce the species. It also identified neighboring provinces in Northern Argentina as the source for releasable animals. Both areas belong to CLT and were chosen because of habitat availability, strict conservation policies and existent management facilities. Local attitudes and knowledge about anteaters from neighboring communities were assessed formally, and were found to be positive or neutral, though there was very little knowledge about the species (Delgado *et al.*, 2008). Since in Argentina wildlife is managed by the provinces, the plan was presented to the government of Corrientes for its final approval, which took more than 1 year. During this process, it helped that the National Wildlife Authority showed explicit support to the re-introduction initiative. Several specialists were consulted, management protocols were designed and published on the Internet, and quarantine and pre-release pens were built. Before the arrival of any animal, we gave several talks in the two neighboring villages (i.e. Carlos Pellegrini and Uguay) to explain the project and its implications.

Implementation: Due to the lack of tradition of re-introduction projects and of cooperation between provincial governments regarding the movement of fauna, at

Rescuing orphan anteater

the beginning it was very difficult to obtain animals for the project. In 2007 we were able to get authorization to move the first two animals: an adult female living on the backyard of a private house and an adult male from a zoo. The day when the first animal arrived to its pre-release pen in Rincón del Socorro there was a big public act attended by the governor of Corrientes and all authorities in charge of wildlife, plus children from the adjacent villages, representatives of conservation NGOs, neighbors, etc. This act helped to break the "political ice" around the project. By June 2015, the project has handled 72 individuals, of which 52 were wild-born orphan cubs, 10 adult captives, two adults translocated from the wild, 8 injured free-ranging adults, and one was captive-born. In the case of orphan cubs, we hand-reared them until they weighted around 20 kg and could be released in INR between late spring and early autumn. All the re-introduced animals came from the Dry Chaco Ecoregion, with the exception of two animals from neighboring Yungas and Wet Chaco ecoregions. Prior to their release, all animals were checked for nine infectious diseases, detecting titres for toxoplasmosis in 27% of the cases and canine distemper in 25%. All animals positive to distemper became negative to the virus before release. Between 2007 and 2015, 31 animals were released in Rincón del Socorro, and 16 animals have been released in San Alonso starting in 2013. Releases at San Alonso continue nowadays and in the near future. During their first two winters in the wild, most animals are supplemented with the same food liquid mixture used during the quarantine and hand-rearing phases.

Post-release monitoring: Re-introduced anteaters were fitted with VHF transmitters and then monitored through this method and camera traps. Radio-harnesses caused injuries in several occasions and had to be refitted often, which required regular recaptures of re-introduced anteaters (Di Blanco *et al.*, 2012). No anteater died as result of these 100 plus recaptures. By June 2015, of 47 released animals, 12 have been found dead, 10 females have given birth to 28 cubs and we estimate that there are between 35 and 45 animals in the first population and 18 in the second one. Since the animals started breeding in 2009, there have been 4 years with more births than deaths and one where mortality surpassed reproduction. Annual survival for the re-introduced animals and their offspring in Socorro is 92% (Zamboni *et al.*, 2015). This number rose to 100% during the 2 years of re-introductions in San Alonso and 53% of all females older

than 3 years gave birth in Socorro annually. However, once a female started giving birth, they tended to produce one cub per year.

Major difficulties faced

- Due to the lack of tradition of cooperation between provincial governments, at the beginning it was especially difficult to get permits to move anteaters from neighboring provinces to Corrientes. Permits were only granted for captive animals and it was not possible to get permits to translocate wild animals from healthy populations towards Iberá.
- Absence of precedents in re-introduction in the country, plus a conservative tradition of management from academia, governments and NGOs created an initial environment of opposition or skepticism towards the whole idea of re-introducing anteaters. However, once results (good and bad) were openly shared, this environment tended to change towards general support.
- Since there were no previous experiences of re-introducing anteaters, we had to learn our own protocols regarding hand-rearing cubs, radio-tagging, winter supplementation, regular recaptures, soft releases, etc. This was a main challenge during the first 5 years, though it has been solved nowadays.
- Radio-harnesses were difficult to adjust and it took much experience and several recaptures to find a way to attach and re-adjust them to avoid their loss or injuring the animals.
- The fact that CLT buys land for conservation and that its President is a rich philanthropist from USA, created a climate of distrust, since nobody could believe that someone would spend significant private funds into a public good. It took several years of proactive communication and public relations to convince the public that the conservation agenda was honest and sincere.

Major lessons learned

- Keep the authorities on the loop: This project was lead by an NGO, but governments have legal authority over wildlife. Therefore, for a project like this to be successful it is crucial to keep good relations with relevant authorities and, whenever they are interested, to allow for their participation. This will take lots of patience, empathy, respect and interpersonal skills, since NGOs and governments have different organizational values, incentives, resources, timing and world-views. Each animal should comply with legal and administrative permits for transportation and handling.
- Progress is incremental and takes time: At the beginning we had to start with very few, and less than ideal animals. This should be taken as part of a normal process. Nothing starts with perfection. Once we were able to show concrete results and establish trust with the many stake-holders, new doors opened and these led to more and better animals, which also led to better results and so on.
- Communicate widely: Anteaters as any wildlife species are a public good, not a private property. If these animals are considered endangered and are also charismatic, they even become more public, since more people care about them. This means that they are not *our* animals, but belong legally, psychologically and emotionally to a wide array of people. Therefore, if we want to get support, and ultimately, approval for translocation and release we

need to inform the public about the project results. The project was communicated in a highly proactive manner through newsletters, presentations in neighboring villages, scientific meetings, technical reports and scientific articles, brochures, posters, a major photo book (Jiménez-Pérez, 2013), a 30 minutes documentary, stickers, a website, Facebook, educational activities with children, etc. During all these years we reported both on the losses and successes related to the project. Honest and effective communication is crucial to achieve the incremental process described above.

Putting a radio-harness on a cub

- Monitor all released animals: Every animal released in the wild has to be monitored for survival, general health and reproduction. This is the only way to assess if we are approaching our goal and if we need to make major changes. Results from monitoring are crucial for communication (see above), which is also crucial for building trust, which is the best way to get access to more and better animals for release.
- Be ready to adapt from reality: Our original plan was based on the availability of wild adult anteaters and a short period of quarantine. Once we started looking for animals it seemed obvious to us that the provincial authorities were not willing to pay the "political price" involved in allowing for wild animals to be captured and translocated to another province. Hence, we had to look for adult animals from zoos, which were politically sound but too scarce to establish a population. Finally we discovered that there was an unknown habit of having anteater cubs in family houses within the Chaco region. These animals were politically available, though they were far from ideal since they required about one year of hand-rearing before release. As result of this new reality, our original quarantine facilities were changed and expanded into a hand-rearing center for orphan giant anteater cubs.

Success of project

Highly Successful	**Successful**	Partially Successful	Failure
	√		

Reason(s) for success/failure:

- Long-term commitment: CLT was ready to invest on this project for as many years as necessary.

- Stakeholder involvement: We were able to inform, show respect and leave space for participation to stakeholders from neighboring villages, anteater areas, landowners, public media, private companies, governments (at three levels), academia, and other NGOs.
- Team work: During these 10 years of work we have been able to establish a highly motivated team of professionals who share a common vision, are able to put aside personal agendas, take management decisions in a cooperative way, manage interpersonal conflicts in an educated and positive manner, and enjoy working with each other. This has been crucial to invest all our energy in getting results, learning fast and avoiding waste of energy in unproductive conflict, blaming each other or interpersonal fights.
- Giant anteaters are easy to work with: They can survive in natural environments in spite of having grown in non-natural settings, and they are also easy to capture and immobilize. This allowed us to work with suboptimal animals (i.e. hand-reared orphan cubs and adults from zoos), to check on their status, readjust their harnesses or supplement them with food whenever it was needed.
- Organizational adaptability: Being a pioneer project, we needed to try and test new methods in order to respond to losses, or to improve our management techniques. In this regard it was critical to monitor the different stages of the re-introduction process: quarantine, hand-rearing, survival and reproduction in the wild. Every year we have discussed and implemented changes in our health screening protocols and veterinary treatments, diet, behavioral enrichment and management of cubs, population monitoring through radio-telemetry and trap cameras, supplementation in the wild, fire management and other practical issues. After 9 years of working with these animals and learning from them and ourselves as a team, we can say that we have reached a "plateau" in efficiency, expressed through high survival of hand-reared and released animals.

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