



# Global Re-introduction Perspectives: 2016

Case-studies from around the globe

Edited by Pritpal S. Soorae



IUCN/SSC Re-introduction Specialist Group (RSG)



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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  
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## Antillean manatee release program in Brazil

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### Introduction

The Antillean manatee (*Trichechus manatus manatus*) (SIRENIA: TRICHECHIDAE) were widespread along the coast of Brazil as far as the southern state of Espírito Santo. However, they have disappeared from many localities due to over-hunting, habitat modification and a very low rate of natural reproduction (ICMBio, 2011). Estimates suggest that there are only about 500 - 1,000 individuals in scattered populations from Amapá State in the far north to the northeastern state of Alagoas (Luna, 2013). Thus, although the manatee is only classified as globally “Vulnerable” by the IUCN, it is regarded as “Critically Endangered” on the Brazilian Red List and is listed in Appendix II of CITES. There is low genetic connectivity between Brazilian manatees and neighboring populations in French Guiana and Guyana, suggesting that the Brazilian population may represent an evolutionarily distinct lineage. Moreover, Brazilian manatees show marked phylogeographic divisions and low haplotype diversity (Luna, 2013). In response to population fragmentation and widespread coastal development, in 1994 the Brazilian government initiated a manatee translocation and re-introduction program using rehabilitated calves.



Antillean manatee © Edson Acioli

### Goals

- Goal 1: Link isolated populations producing a continuous distribution.
- Goal 2: Minimize negative genetic effects.
- Goal 3: Re-colonize parts of the historical distribution.

### Success Indicators

- Indicator 1: Adaptation and survive of released individuals.

- Indicator 2:  
Reproductive success of released individuals.
- Indicator 3: Actual distribution increased.

## Project Summary

**Feasibility:** Three release sites were used over the 20 years of the study, two in Alagoas and one in Paraíba State, northeastern Brazil. The two Alagoas sites are Porto de Pedras and Paripueira, inside the Costa dos Corais MPA. The region has inshore reefs, sea grass beds,



**Boat capture at Alagoas release site**

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algae and mangrove areas (ICMBio, 2011). Paripueira was the first release site. However, because of its close proximity (25 km north) to the state capital Maceió, translocations were stopped after only two releases. A new site (Porto de Pedras) 70 km north of Paripueira was subsequently chosen and has been used since 1998. This site is in the middle of two disjunct populations and had no extant population of manatees. The Paraíba site is in Barra do Rio Mamanguape MPA, an estuarine complex close to sea grass beds and inshore reefs (ICMBio, 2011).

**Implementation:** Stranding of newborn calves is one of the greatest threats to manatees in Brazil as a result of their habitat degradation (Parente *et al.*, 2004; ICMBio, 2011). Government agencies and partner institutions, as members of the Brazilian Stranding Network, rescue stranded calves and transfer them to a rehabilitation facility on Itamaracá Island at CMA/ICMBio facility. After a health assessment the rescued animals are kept in individual pools for a quarantine period, after which they are moved to bigger pools with other calves. They are fed on soy milk compounds, algae and sea grass. At the age of 1 year, they are put in a re-introduction oceanarium' where they have a more natural diet of sea grass and algae supplemented with vegetables (carrots and lettuce) and vitamins. After rehabilitation, selected individuals are moved by trucks and boats to staging areas. The manatees spend some time (15 days at the start of the Project, but increasing to 3 - 12 months later in the Project to facilitate acclimatization) in these areas to adapt to local environmental conditions.

**Post-release monitoring:** After release, the manatees were monitored using Very High Frequency (VHF) and satellite radio tags. A belt was attached around the caudal peduncle and a floating transmitter was connected with a flexible cable. Three different transmitter models were used (all produced by Telonics, INC.): The MOD-550 is a VHF only transmitter; ST-03 is a platform type transmitter (PTT) that uses an ARGOS link; The TMT-462 and TMT-464-2 are

Global Positioning System (GPS) transmitters that also have an ARGOS link. All satellite transmitters had built-in VHF transmitters, making it possible to track the target manatee in the field. The VHF signal is typically monitored until the researcher has observed the target manatee. Behavioral data were also recorded during field tracking, focusing on behavior relating to acclimatization or breeding. Satellite data were obtained through the ARGOS service and, when the radio tag could be recovered, data were downloaded directly from transmitters. From 2004 to 2012, all released manatees received passive integrate transponder (PIT) tags.

To facilitate comparison, the criteria used to determine success or failure was similar to those used by the Florida Manatee Rescue, Rehabilitation and Release Program. If an individual manatee lives at least 1 year after release without intervention it is considered as a successful. If the manatee dies, during the first year after release, it is considered as a failure. Due to problems with acclimatization or other issues some manatees were released more than once. Missing manatees are considered success if the carcass was not recovered - there is a marine mammal stranding network across the region and systematic campaigns to encourage people to report stranding. Moreover, the rarity of manatees means that sightings and strandings are normally widely publicized.

To measure the effectiveness of the Project in terms of breeding, seven released manatees (4 males and 3 females) were monitored by radio tags over a longer time period (average of 2,700 days). Breeding success was assessed through pregnancy diagnosis for females and breeding behavior observations for males. Breeding behavior was defined as seeing the male manatee in a typical embracing position with another individual. However, male manatees frequently engage in homosexual couplings and embracing behavior therefore does not necessarily signify male-female coupling.



Health assessment and tagging

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## Major difficulties faced

- The high costs involved and the necessity to keep long-term financial support.
- Logistical difficulties related to keeping manatees in captivity and to manage them in natural conditions.
- The shortage of pristine habitats along the coast of northeast Brazil.

## Major lessons learned

- Soft-release facilitates the acclimatization process.
- Close monitoring, health assessments and rescues can significantly increase the success of release.
- Combining different monitoring techniques can improve data quality and reduce tracking costs.
- Long-term studies (15 - 20 years) are needed to effectively evaluate results.
- Releasing animals at approximately 5 years of age increases re-introduction success.

## Success of project

Highly Successful	Successful	Partially Successful	Failure
	√		

### Reason(s) for success/failure:

- The combination of long-term investment from the Federal Government, NGOs and private sources.
- The creation and refine of re-introduction protocols over a 20 year period.
- Awareness-raising and the engagement of local populations.

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