

# GLOBAL RE-INTRODUCTION PERSPECTIVES

*Re-introduction case-studies from around the globe*



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**Cover photo:** Clockwise starting from top-left:

- Formosan salmon stream, Taiwan
- Students in Madagascar with tree seedlings
- Virgin Islands boa

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## Release of greater slow lorises, confiscated from the pet trade, to Batutegi Protected Forest, Sumatra, Indonesia

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### Introduction

Although habitat destruction is the main threat to wild slow lorises (*Nycticebus* spp.) (Daoying, 1999), their popularity in the illegal pet trade and for use as traditional 'medicine' further reduces natural populations (Shepherd *et al.*, 2004). In response to this threat, in 2007 CITES transferred all slow lorises (*Nycticebus* spp.) to Appendix 1, banning international commercial trade. Despite legal protection, lack of enforcement in range countries means that trade persists (Nekaris & Jaffe, 2007). Amongst the countries most notorious for trade is Indonesia, where three species of slow loris are traded openly (Shepherd *et al.*, 2004). One of these species, the greater slow loris (*N. coucang* - ENA2cd) occurs in Sumatra, where ports in Lampung and Medan facilitate illegal exchange. Pusat Penyelamatan Satwa (PPS), Lampung has basic rescue centre facilities where confiscated animals are held. Due to limited holding facilities, in 2006, they conducted their first release project, releasing pig-tailed macaques into Batutegi Reserve, an 11,000 ha primary lowland rainforest. In April 2007, PPS officials confiscated 26 slow lorises. Batutegi was designated as an appropriate site to release surviving individuals. As to further our understanding of loris re-introduction, we volunteered to aid them in the release process.



Released slow loris (*Nycticebus coucang*)  
in Batutegi, Southern Sumatra

### Goals

- Goal 1: Observe captive behavior of confiscated lorises, ensuring wild survival skills are intact, to determine their suitability for release.
- Goal 2: Determine the ability of wild adult females to care for more than one offspring successfully.
- Goal 3: Release wild-born animals before they spent too long a period in captivity.

- **Goal 4:** Release the animals to a suitable wild habitat from which they are less likely to be recaptured for trade.

## Success Indicators

- **Indicator 1:** Animals exhibit natural nesting and social behavior, as well as foraging and hunting skills.
- **Indicator 2:** Adult females successfully rear and bond with more than two juvenile lorises, who themselves show a degree of independence from the mother, in particular as regards foraging skills.
- **Indicator 3:** Maintain limited human contact with the lorises, and keep them in as natural captive conditions as possible, releasing them only when the first two indicators have been met.
- **Indicator 4:** The forest area where the animals are released has a high level of protection by the forest department, human impact is limited, and animals are released far into the reserve, where recapture is less likely.

## Project Summary

**Feasibility:** In Sumatra, greater slow lorises prefer secondary tree fall zones in primary rainforest, but can also be found in areas disturbed by humans. Forays into home gardens, slow locomotion and a habit of parking their young mean that lorises are easily caught; both adults and juveniles are common in Indonesian markets, despite being protected by Indonesian law. With a GDP of US\$ 880 per capita in Indonesia, prices of up to US\$ 100 per animal make lorises a valuable commodity, particularly when coupled with insufficient enforcement of trade laws, and low levels of punishment when violators are prosecuted. PPS Lampung, however, is active in pursuing illegal traders and regularly confiscates animal shipments. In April 2007, they confiscated 19 lorises, including five adults and 14 juveniles. Being susceptible to stress in captivity, 12 of these animals died, leaving two lactating adult females and five juveniles. As lorises can give birth to twins, and occasionally quintuplets, it was deemed feasible to pair one mother with a pair of young, and the older mother with a trio. PPS' facilities are surrounded by natural woodlands, providing natural insects and wild fruits and suitable materials for furnishing enclosures. Surveys in 2006 in Batutegi Reserve revealed that lorises were present, but at low abundance; thus it was chosen as an appropriate site to release the surviving lorises.

**Implementation:** In order to assess suitability of the animals for release, behavioral observations were conducted from 23<sup>rd</sup> April to 17<sup>th</sup> June 2007 for 10 hours per night using systematic animal sampling. Recorded behaviors included those thought to be vital for release including locomotion, social behavior, and substrate use, as well as sequences of play fighting, scent marking and wood gouging (Fitch-Snyder & Ehrlich, 2003). At the onset of behavioral observations, only two adult females survived - one primiparous female, and one older multiparous female, who was clearly an experienced mother. All lorises arrived at the centre malnourished, and thus hand-feeding juveniles and monitoring foraging behavior of independent lorises was a priority. Some juveniles still suckled from the females, and over time, some died due to malnutrition, being neglected by the

mothers or displaced by stronger juveniles. Two large male juveniles were relatively independent, catching insects within the first week of observations. Preparations for release began 7<sup>th</sup> to 14<sup>th</sup> June 2007, after behavioral observations showed individuals to be healthy and stable. The release occurred from 14<sup>th</sup> to 17<sup>th</sup> June 2007. Health examinations took place on 11<sup>th</sup> June, during which final weights were recorded, and TB tests and parasite medication given. Each individual was rechecked by Dr. Sanchez on 14<sup>th</sup> June to determine that the medications caused no complications and that the TB results were negative.

The lorises were transported to the release site in two thick plastic crates (14.0 cm high x 18.5 cm deep x 14.0 cm wide) with side walls consisting of breathing squares 2.0 cm. in diameter. Horizontal branches of bamboo were fitted in the crates, providing lorises with a secure substrate on which to cling. The crates were loaded into a truck and were accompanied by PPS staff members, who monitored them during transport. Equipment and animals were transferred by boat in the Batutegei dam to the forest edge. The lorises were then carried 3.5 km to a rehabilitation cage. The rehabilitation cage (1.3 m x 1.6 m x 1.0 m) consisted of bamboo and nylon net (1.5 cm in diameter, with 2.0 mm thick thread). Two 10 m long bamboo branches connected the net to the canopy to provide two pathways to the trees for the day of release. The group was monitored in this temporary enclosure for two days.

**Post-release monitoring:** The release took place after 21:00 hrs on 16<sup>th</sup> June 2007. Team members cut the net around the bamboo pathways, allowing individuals to choose when they left the security of the habituation cage. Once all seven lorises had emerged from the net and were climbing in the canopy, they were observed with red light. Post-release monitoring occurred for one night only. The habituation cage was left in place overnight, acting as a “home base” to provide shelter, in case any of the released animals felt the need to return, (Waples & Stagoll, 1997). Interactions between conspecifics did not change at their new location from what had been observed at PPS. Juveniles actively play-fought with each other, and all seven individuals allogroomed and foraged. The juveniles independently explored their environment and did not cling to either mother. The three juveniles that followed the older mother stayed in close proximity of each other, with the mother returning now and then to check on them. The younger mother, however, did not interact with the two juveniles nearest to her. Both of these juveniles independently explored and were observed to unite to allogroom. Neither the mothers nor juveniles returned to the habituation enclosure.

## Major difficulties faced

- We were not able to determine the geographic origins of the animals genetically; two subspecies of loris occur in Sumatra and juveniles are difficult to distinguish.
- Miscommunication regarding husbandry post-confiscation between researchers and local workers meant that enclosures were altered often, creating stress, and perhaps resulting in the premature death of some of the lorises.

- Local customs regarding entering the forest at night impeded the amount of time available for the habituation and post-monitoring periods.
- Misconceptions on ecological issues on the part of local workers meant that length of habituation time and post-release monitoring periods were not a priority.
- The importance of allowing infants to obtain a state of independence from their mothers before release was a difficult concept to relate to local authorities.



**Slow lorises in a temporary habituation enclosure at release site**

## Major lessons learned

- During the pre-release observation period, animals should be kept in stable social groups; lorises are often kept solitarily, but this should be avoided where possible.
- Pre-release enclosures both in captivity and in the forest must be furnished so that animals can move in a semi-natural arboreal setting; lorises become ill when they are forced to sit on the ground.
- Pre-release enclosures should provide hiding places from the sun and from predators, in the form of nest boxes or dense branch tangles kept at a distance from the net/cage, and the enclosures should be placed at a distance from anthropogenic disturbance; hiding places reduce stress.
- Encouraging natural feeding behaviors through a varied diet, including providing live animals for hunting and wood (not timber) for gouging, are essential; in Indonesia, lorises are normally kept only on bananas and die due to malnutrition.
- Team members (preferably a small team) need to have an a prior agreement regarding procedures concerning the release that is carried out throughout the proceeding, with a single well-trained team leader who makes final decisions.
- The release itself should be conducted only by a small committed team to reduce stress to the animals.

## Success of project

Highly Successful	Successful	Partially Successful	Failure
		√	

### Reasons for success/failure:

- The animals were exhibiting natural behaviors, including adoption of infants by the mothers, and were in good health.
- The animals were only recently caught from the wild, most likely in a nearby forest, and had a high chance of survival.
- Local customs and beliefs meant that long-term post-release monitoring was not possible, and thus judgment of the success of this project was severely hindered.
- Facilities are not yet available in Indonesia to maintain lorises in captivity long-term, meaning that the only other option for these Endangered animals was euthanasia. Considering the hindrances this project faced, we felt that the animals had a good chance of survival, even if all IUCN protocols could not be followed.

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