

CONFISCATION, REHABILITATION AND PLACEMENT OF SLOW LORISES: RECOMMENDATIONS TO IMPROVE THE HANDLING OF CONFISCATED SLOW LORISES *NYCTICEBUS COUCANG*

Ulrike Streicher¹, Helga Schulze², & Helena Fitch-Snyder³

¹Endangered Primate Rescue Center, Cuc Phuong National Park, Nho Quan District, Ninh Bin, Vietnam

²Ruhr-University, MA 6/161 b, 44780 Bochum, Germany

³Loris Conservation International, 5624 Jockey Way, Bonita, California 91902, USA,

Email: Nycticebus@yahoo.com

ABSTRACT

Lorises are common in the wildlife trade all over Indonesia. They are traded as pets but also used in traditional medicines and are destined for the national as well as the international market. Large numbers of lorises are exported to the Middle East and Asian countries and confiscations of up to one hundred of animals in a single shipment are known to occur. The care, rehabilitation and final placement of these animals seem currently not addressed in a satisfying way. Animals die due to lack of adequate facilities, diseases, or ill managed releases. Some recommendations to reduce these problems have been developed during the workshop on tarsier and loris taxonomy, husbandry and conservation in Jakarta, 15.-25. February 2003. Materials herein are only brief and it is strongly recommended to access the mentioned sources for more detailed information.

Keywords: Slow Loris, Wildlife Trade, Confiscations, Wildlife Rescue.

Note: The following recommendations address specifically the lorises confiscated in animal markets and in the trade (animals with unknown geographical origin).

Animals, which are confiscated by rangers directly from hunters (animals with known geographical origin), require a different proceeding. These cases are not addressed here and recommendations for these cases can be obtained from the authors.

INTRODUCTION

Lorises occur from China west to India, and south to Indonesia. A number of different species and genera occur in ten different countries. Despite different political structures and economic situations in these countries there is agreement on the protection of lorises. In most countries hunting or capture of lorises is prohibited and the keeping of lorises illegal. Keeping lorises is subject to permits that can usually be issued only by high governmental authorities and these permits are often restricted to specific purposes (e.g. scientific). In some countries there are no specified exceptions and all keeping of lorises is illegal. Fines can be surprisingly high and imprisonment up to 6 years can in theory be imposed. In Indonesia lorises are protected under Decree of Agriculture Ministry No.66 of 1973, the Government Regulation No. 7 of 1999 concerning the Protection of Wild Flora and Fauna and Act No. 5 of 1999 concerning the

Biodiversity Conservation. Consequently all catching, killing, keeping, hurting, transporting and trading of live or dead lorises, parts of their bodies and derivatives or products made of them is prohibited. Imprisonment up to five years and a fine up to 100.000.000 rupiah can be implemented in case of violation. Lorises can only be kept with a permission from the Directorate of General Forest Protection and Nature Conservation and only for the purpose of captive breeding.

The international trade with lorises is restricted by CITES and most loris species are listed in appendix II.

A major task of conservation must be to raise awareness on the legal status of lorises and to encourage strict law enforcement in order to prevent hunting and illegal keeping.

Handling of lorises after confiscation

Lorises are nocturnal primates and are very susceptible to stress. Direct handling of confiscated

animals should be reduced to a minimum and reducing stress must be a main concern during all stages of confiscation and rehabilitation. The environment of the cages should always be quiet and cages should be at least partly covered and provide enough hiding possibilities (branches with foliage, sleeping boxes).

Lorises should be handled preferably with gloves for the safety of the people handling them. Little is known about the diseases carried by wild lorises but potentially dangerous viruses can never be excluded. In addition bites of lorises can be toxic and are known to occasionally cause anaphylactic reactions.

Transport containers for lorises should be dark, maybe with mesh wire on one of the sides to allow control of the animals. Two layers of mesh wire at a distance of at least one centimetre prevent injuries on the lorises' hands during transport. Cages should contain some branches with foliage for the animals to hide. Ideally containers should at least measure 300 mm x 300 mm x 300 mm so lorises can be kept in them for several days if necessary.

Lorises are fairly solitary animals and should be kept in separate transport containers if possible. However animals that have been together in a shipment or in one cage in a market can be kept in the same transport container. Separating them from a familiar cage mate might increase the stress for the animals, but the number of animals should not exceed four animals per cage/ transport unit.

Animals should be transported in a non air-conditioned vehicle. Exposing them for several hours to an air-conditioned environment where temperature and humidity are considerably lower than outside can cause severe health problems.

Emergency health care

After transport and confiscation, lorises should be given some time to recover before they are inspected or handled.

After the recovery period a careful inspection without direct handling of the animal should be conducted (see attachments).

Common health problems in confiscated lorises include stress, dehydration, injuries, parasites and dental problems. Consequently emergency treatment will comprise the following:

1. Rest and removal of possible stress factors
2. Rehydration, orally or subcutaneously
3. Antibiotic treatment
4. Wound hygiene/ dental problems
5. Antiparasitic treatment

Details on treatment are included in the attachments.

Identification

1. Taxonomic Identification

At present knowledge of taxonomy of lorises is fragmentary. The number of species and possible subspecies of slow lorises in Indonesia is uncertain. A classification proposed in 1972 recognised three subspecies: *Nycticebus coucang coucang* (Sumatra, North Natuna), *Nycticebus coucang menagenis* (Borneo, Bangka, Belitong) and *Nycticebus coucang javanicus* (Java). But this arrangement may be too simple and needs to be checked by examination of larger samples of known origin and by molecular and karyotype work.

Intensified surveys for lorises are required and the data collection should be standardized in order to allow better comparison of the gathered data. A suggested standard data collection sheet is attached to these materials (see attachments). It is important to emphasize that the data collection on confiscated animals is particularly important in order to assess later placement possibilities but also to identify trade source areas.

A preliminary identification key for the different loris subspecies is shown in attachment 4 and a detailed version is currently in preparation. But a wide variety of colourations occur even within the subspecies level and exact taxonomic identification based on the outer appearance might be difficult.

A dry hair sample or faecal sample in 100% Ethanol should be taken for genetic identification. The hair sample should be taken with a pair of tweezers or an artery forceps. It is important to assure the hairs are collected with the roots and care must be taken

not to touch the hairs in order not to contaminate the sample.

Hair samples are subject to CITES regulations and their export and import requires official permits.

2. Individual identification

Lorises might be confiscated in large numbers and it is important to mark the animals individually. Implanting a transponder (microchip) is the marking method of choice. If lorises are kept in large groups a visible marking method might additionally be required. Coloured plastic bird rings are widely available and have been used in several institutions successfully.

The number of the transponder respectively the colour of the arm ring must be noted on the measure sheet and track must be kept of every single individual from the moment of confiscation until its death or return to the wild.

Quarantine and health screening

In view of the high risk of primates carrying zoonotic diseases, quarantine requirements are stringent (Woodford 2001). As other primates lorises should be held in quarantine for at least 30 days after arrival. Quarantine cages must be easy to clean and sufficiently large to keep the animal for several weeks.

Though hygiene plays an important role during the quarantine period, but in order to reduce stress, nest boxes must also be provided in quarantine cages and cages should be covered with drapes at least on three sides.

Animals of one shipment can be quarantined together, but in order to reduce social stress, it is recommended to keep only small groups of animals, which are familiar with each other in the same quarantine cage.

However it is difficult to confirm that each individual is eating normally. Animals that have been found in a poor state and/or animals with dental problems should be housed separately during quarantine in order to assure they feed normally.

At least one general health check under anaesthesia should be performed during the quarantine period. Health checks in trade confiscated

lorises must include full dental checks, since removing teeth is a common procedure in animals destined for the pet trade. Suggestions on basic treatment and a recommended quarantine protocol are included in the attachments.

Long-term placement options

1. Re-introduction

Re-introduction is often considered a suitable placement option for confiscated lorises. However there are many concerns related to such a proceeding.

The provenance of animals confiscated from the trade and from transports is usually not known. Furthermore the taxonomy of Indonesian lorises is still insufficiently known. Releasing individuals from a different race or sub-species might be a threat to the local population. Little is known about lorises specific adaptations to the ecological requirements of their habitat and individuals released into the wrong habitat type might not have the necessary skills to survive.

Due to limited awareness and facilities animals hardly undergo a thorough health check and quarantine period before being returned to the wild. But animals that have been in the transport and trade might carry diseases and if they are returned to the wild they might spread these diseases to the wild populations. Thus the released animals can become a serious health threat to the wild populations.

In addition animals might not have the necessary skills to survive in the wild. In most cases the animals are not monitored after the release and nothing is known about their survival in the wild. Returning animals to the wild in a responsible manner might be expensive and might limit the resources available for the conservation of the wild populations (IUCN, 2002).

Due to the lack of detailed taxonomic information and the lack of capacity for adequate health care (screening, quarantine) re-introduction into the wild is at present not considered a feasible option (see 2.A).

It might be possible in the future and in this respect it is important to assure the genetic resources (see 6.2).

2. Captivity

Captive options are described in detail in this volume in Fitch-Snyder, H., Schulze, H., Streicher, U. 2003: Enclosure design. Indonesian Prosimian Workshop. Schmutzer Primate Center, Jakarta, Indonesia.

2.1. Keeping in semi-natural conditions

The establishment of semi-wild areas for the permanent keeping of larger groups of confiscated lorises (sanctuary) is an option worth pursuing for the immediate solution of the problem.

Animals could be kept in a large fenced area and supplementary fed. There is no experience yet with such a facility for lorises and in particular and optimal feeding management for the lorises has to be developed. Optimal group size and potential social stress factors should be studied in such a facility in order to find suitable group sizes. Detailed recommendations on the establishment and management of such an enclosure can be found in the mentioned document. As long as there are no other placement solutions for confiscated lorises, breeding should be restricted for common lorises' taxa in a rescue centre situation. The least invasive way to do so is by separating the sexes and housing only all female or all male groups.

Though animals can't be reintroduced at present, they can still be a valuable resource for educational purposes. In addition they provide important study possibilities and they assure that genetic resources are not lost.

2.2. Captive breeding programme

At present some taxa of Indonesian lorises do not exist in captivity and little is known about their status in the wild. Confiscated individuals of such insufficiently known taxa should be used to establish a captive breeding population. Such a breeding population can be established and maintained with minimal cost and should not necessarily be used for exhibition.

3 Euthanasia

Euthanasia might become necessary in some cases. Aspects of animal health and conservational considerations as well as lacking financial and logistical capacity to cope with the number of confiscated lorises suggest euthanasia as a feasible option. But it should always be considered the last option and should be only pursued if all other options have been thoroughly explored.

Public opinion and political aspects might well be contradictory and care must be taken to carefully justify any case of euthanasia, in order to maintain the credibility of conservation efforts.

Further information on lorises

First aid, taxonomy, husbandry, measuring standards, diseases:

<http://www.loris-conservation.org/database/>

Quarantine:

Woodford, M.H. .2001. Quarantine protocols and health screening protocols for wildlife prior to translocation and release in to the wild. Office International des Epizooties. Paris, France.

Diseases:

Goeltenboth, R. Kloes, H.-G. 1995. Krankheiten der Zoo- und Wildtiere. Blackwell Wissenschaftsverlag, Berlin.

Husbandry:

Fitch-Snyder, H. and Schulze, H. (eds.). 2001. Management of Lorises in Captivity. A Husbandry Manual for Asian Lorises (*Nycticebus & Loris spp.*) Center for Reproduction in Endangered Species (CRES), Zoological Society of San Diego, USA.

Fitch-Snyder, H., Schulze, H., Streicher, U. 2003. Enclosure design. Indonesian Prosimian Workshop. Schmutzer Primate Center, Jakarta, Indonesia. In prep.

Placement:

Baker, L. R. (ed.). 2002. Guidelines for Nonhuman Primate Re-introductions. In Soorae, P.S., Baker, L.R. (eds.). Re-introduction News:

Special Primate Issue, Newsletter of the IUCN/SSC Re-introduction Specialist Group, Abu Dhabi, UAE. No. 21: 29-53.

- IUCN. 2002. Guidelines on the Placement of Confiscated Animals. IUCN/SSC Re-introduction Specialist Group, Abu Dhabi, UAE.
- IUCN. 1998. IUCN Guidelines for Re-introductions. Prepared by the IUCN/SSC Re-introduction Specialist Group. Abu Dhabi, UAE.

ACKNOWLEDGEMENTS

Though three authors a signing responsible for this paper, it includes contributions from many participants of the Indonesian Prosimian Workshop in Jakarta in February 2003. Particularly Irene Arboleda, Colin Groves, Sharon Gursky, Alexandra Nietzsche and Myron Shekelle have provided valuable inputs to this paper. Staff of the Schmutzer Primate Center, Pro Fauna Indonesia and WWF Indonesia have contributed in many discussions.

Sincere thanks go to LIPI and the Schmutzer Primate Center, which financed and hosted this workshop. Very personal thanks go to Myron Shekelle for his efforts in organizing the workshop.

REFERENCES

- Baker, LR. (ed.) 2002. Guidelines for Nonhuman Primate Re-introductions.
- In Soorae, PS & LR. Baker. (eds.). Re-introduction News: Special Primate Issue, Newsletter of the IUCN/SSC Re-introduction Specialist Group, Abu Dhabi, UAE. No. 21: 29-53
- Fitch-Snyder, H. (eds.) 2001. Management of Lorises in Captivity.
- A Husbandry Manual for Asian Lorises (*Nycticebus & Loris spp.*) Center for Reproduction in Endangered Species (CRES), Zoological Society of San Diego, USA.
- Gass, H. 1987. Affen. In: K. Grabisch & P. Zwart (eds.): Krankheiten der Wildtiere. Schluetersche Verlagsanstalt, Hannover, Germany.
- Goeltenboth, R & HG Kloss.. 1995. Krankheiten der Zoo- und Wildtiere. Blackwell Wissenschaftsverlag, Berlin, Germany.
- IUCN. 2002. Guidelines on the Placement of Confiscated Animals. IUCN/SSC Re-introduction Specialist Group, Abu Dhabi, UAE.
- IUCN. 1998. IUCN Guidelines for Re-introductions. Prepared by the IUCN/SSC Re-introduction Specialist Group. Abu Dhabi, UAE.
- Schulze, H. & H. Fitch-Snyder. 2001. Conservation database for lorises and pottos. <http://www.loris-conservation.org/database/>
- Sutherland-Smith, M. 2001. Review of Loris Clinical information and Pathological Data From The San Diego Zoo:1982-1995. In: Management of Lorises in Captivity. A Husbandry Manual for Asian Lorises (*Nycticebus & Loris spp.*). Fitch-Snyder, H. and Schulze, H. (eds.). 2001. Center for Reproduction in Endangered Species (CRES), Zoological Society of San Diego, USA.
- Wiens, F. 1995. Verhaltensbeobachtungen am Plumplori *Nycticebus coucang* (Primates: Lorisidae) im Freiland. Diplomarbeit. Johann Wolfgang Goethe-Universitaet, Frankfurt a.M., Germany.
- Woodford, MH. 2001. Quarantine protocols and health screening protocols for wildlife prior to translocation and release in to the wild. Office International des Epizooties. Paris, France.

Attachment 1- Performing a basic health check

Healthy animals should be alert, when disturbed

Signs of diseases:

Animal seems very sleepy

Animals hold the head wobbly or not straight.

Note: Freezing to motionlessness may be normal camouflage behaviour, indicating stress

The eyes should be bright and look around actively, when disturbed

Signs of diseases:

There is blood, pus or other secretion around the eye.

Animal is unable to open both eyes.

There is a swelling in the surrounding of the eye.

The eye seems dull, greyish or sunken.

The nostrils should be clean and the animal breathes normally

Signs of diseases:

There is blood, pus or other secretion around the nostrils.

The animal is breathing very heavily.

The animal makes sounds while breathing.

Note: Feeling threatened lorises might utter growls, that must not be misinterpreted as raspy breathing and a sign of disease.

The muzzle should be symmetrical and the animal should feed normally

Signs of diseases:

Swollen or enlarged muzzle.

Blood or pus on the visible gums.

Difficulties to bite and chew.

The ears should be symmetrical and clean

Signs of diseases:

There is blood, pus or other secretion from one or both ears.

One ear or both ears hanging not normally

There are injuries or swellings around the ear.

They should have a healthy looking coat

Signs of diseases:

There are injuries or wounds

There are bald patches

The animal shows excessive scratching.

They should have a normal body shape and move normally

Signs of diseases:

There are swellings or lumps

The position of one or more limbs is abnormal.

There is lack of function of a limb

Note: During daytime lorises will present themselves mostly tightly curled up, holding on to the cage or the cage furnishing. Thus it might be difficult to correctly assess the reactions of the animal. Repeating the inspection of the animal at night with the help of a torch might be necessary.

Animal access sheet

Access data:

Taxon name: Identification number:

Date of birth (est.): Sex:

Weight: Source:

Arrival date:

External check on arrival (not under anaesthesia):

Nutrition state:

Care state:

Skin:

Eyes:

Nose:

Mouth:

Movements:

Digestive system:

Respiratory system:

Circulatory system:

Emergency measures:

Feeding instructions:

Duration of quarantine:

Attachment 2 – Emergency care of slow lorises

Emergency care

The below mentioned drugs are only some suggestions out of a variety of possibilities.

- Rehydration:** Oral rehydration solution or Ringer’s lactate orally or subcutaneous (at body temperature), up to 10 % of the bodyweight distributed over the day
- Antibiotic treatment:** Antibiotic treatment is required in case of obvious (wounds, gingivitis, pneumonia) infections in order to prevent further spreading of bacteria. Enrofloxacin (Baytril®) has been used with good results at a dosage of 5mg/kg intramuscular.
- Wound hygiene:** Wounds should be cleaned with clean water and iodine solution (Betadyne®). Application of antibiotic creams is not recommended, since lorises lick themselves thoroughly and will ingest the cream. Wound in trade animals will in most cases not be fresh and aggressive treatment (e.g. suturing) might be delayed for several days until the health check under anaesthesia.
- Dental problems:** Dental problems occur mostly in animals from the pet trade, in which teeth have been removed. These animals might suffer from severe gingivitis and sinusitis. Antibiotic treatment is necessary in order to control the infection. In addition such animals might be reluctant to feed on hard or firm food items and might require specific food preparation (blander). In some cases removal of teeth or tooth fragments might be necessary but this can only be done under anaesthesia.
- Antiparasitic treatment:** Ivermectin (Ivomec®)
0.2-0.4 mg/kg (Goeltenboth *et al.*, 1990)

Attachment 3 – Quarantine and health screening in slow lorises

Quarantine

Based on international guidelines (Woodford, 2001) 30 days quarantine with the following protocol is recommended. During anaesthesia at least one full health check must be performed under anaesthesia.

1. Faecal examination (direct and flotation) for endoparasites, especially *Entamoeba sp.* which often infect primates, causing diarrhoea in animals subjected to stress. Since *Entamoeba sp.* are shed intermittently, several samples should be examined.
2. Check for ectoparasites.
3. Appropriate serology, based on history and origin. Health screening for lorises might include screening for Hepatitis B and C and Herpes simplex and Herpes B viruses.
4. Intracutaneous tests for tuberculosis (using avian, bovine or mammalian tuberculine). In most primates this test is routinely performed in the eyelid. However this location might in lorises be difficult to monitor and a shaved spot on the flank or abdomen might be preferable.
5. Complete blood chemistry

Note: False positive tuberculine reactions have been reported from lorises at San Diego Zoo. A new Herpes virus variety has been identified in lorises at the same facility.
Not all rescue facilities might be able to perform all these tests for several reasons. Thus the quarantine period should be absolutely strictly kept.

Anaesthesia

Anaesthesia should only be performed by qualified veterinarians.

Ketamine is most commonly used for anaesthesia in lorises.

Recommended dosage: 23 mg/kg intramuscular
Literature: 5 mg/kg (Gass, 1978)
8-12 mg/kg (Sutherland-Smith *et al.*, 2000)
20 mg/kg (Goeltenboth *et al.*, 1990)
11.3-33.3 mg/kg (Wiens, 1995)
Note: females might require lower dosages than males

Health check in anaesthesia:

Taxon name:	Identification number:
Date of birth (est.):	Sex:
Weight:	Origin:
Arrival date:	Way of application: