

Action plan for the control of commensal, non-human primates in public places

Mewa Singh, Iqbal Malik, Wolfgang Dittus, Anindya Sinha, Aniruddha Belsare, Sally Walker, Sanjay Molur, Belinda Wright, Janaki Lenin and Sujoy Chaudhuri

Conflict with Non-Human Primates

Conflict with non-human primates is related to levels of tolerance, a dynamic that is influenced by the degree of disturbance to pursuance of human activities caused by the animals. There can thus be no predetermined number of non-human primates that can be predicted to cause conflict.

Non-human primates display aggression towards humans primarily over food (crops, tourist feeding, etc.); non-human primates become bold when they have learned that an easy meal can be won by showing dominant behaviors towards humans. From a non-human primates' point of view a human engages in an act of subservience towards it by giving it food - and it may follow up with aggression if food is withheld or not given. In short, by feeding non-human primates humans are teaching them to

be aggressive towards humans. They may also become aggressive when they perceive that a human is threatening one of their youngsters.

Conflict with non-human primates may arise from:

1. populations of non-human primates in public spaces, which may cause conflict by sheer number alone;
2. aggression by some or all of the non-human primates resident within public spaces that leads to attacks/biting and human injury;
3. the decreasing space between non-human primates and human settlements which results in crop raiding and garbage eating;
4. the resulting decline of remaining populations, e.g. those left after poisoning, shooting, etc.;
5. the translocation of non-human primates into areas where no conflict was reported earlier;

Editor's note:

This compilation was developed and submitted to the Ministry of Environment and Forests, Government of India by the authors of the Action Plan in 2005. In light of the new committees formulated to look at human-wildlife negative interactions (conflict) by the Ministry of Environment, Forests and Climate Change, it is important to publish this document so that it is consulted by the new committees who can perhaps use this as a base for further work.

A few taxonomic changes have occurred since the 2005 Action Plan listed below. Since the 2019 IUCN Red List is being updated currently, the assessments have not been updated on the Action Plan as they are subject to change in a few cases.

2005 Action Plan

Semnopithecus entellus achates
Semnopithecus entellus anchises
Semnopithecus entellus entellus
Semnopithecus entellus schistaceus
Semnopithecus entellus ajax
Semnopithecus entellus hector
Semnopithecus entellus hypoleucos
Semnopithecus (Trachypithecus) johnii johnii
Trachypithecus obscurus phayrei

Current valid name

Semnopithecus hypoleucos achates
Semnopithecus priam anchises
Semnopithecus entellus
Semnopithecus schistaceus
Semnopithecus ajax
Semnopithecus hector
Semnopithecus hypoleucos
Semnopithecus johnii
Trachypithecus phayrei

6. the likelihood of these populations increasing due to their accessibility of garbage, feeding by tourists, etc;
7. destruction of crops;
8. approaching or entering houses, government works etc.;
9. the transmission of zoonotic diseases from human to non-human primate and *vice versa*;
10. guides encouraging feeding to promote contact with tourists, etc.

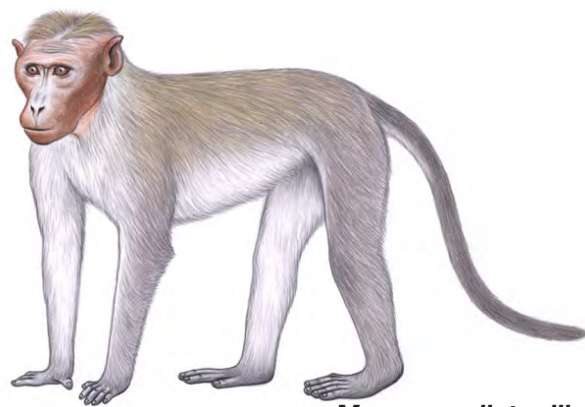
All non-human primates have the potential of becoming commensal, but the following list covers those subspecies which are currently reported to be in conflict with humans in India:

1. *Macaca mulatta mulatta*,
Indian Rhesus Macaque
2. *Macaca radiata radiata*,
Dark-bellied Bonnet Macaque
3. *Macaca radiata diluta*,
Pale-bellied Bonnet Macaque
4. *Semnopithecus entellus achates*,
Western Hanuman Langur
5. *Semnopithecus entellus anchises*,
Deccan Hanuman Langur
6. *Semnopithecus entellus entellus*,
Bengal Hanuman Langur
7. *Semnopithecus entellus schistaceus*,
Central Himalayan Langur
8. *Semnopithecus priam priam*,
Coromandel Grey Langur
9. *Semnopithecus priam thersites*,
Grey Langur
10. *Semnopithecus entellus ajax*,
Himalayan Grey Langur

All but the first four of the species listed above have been categorized as Near Threatened, Vulnerable or Endangered by the IUCN, highlighting the need for a differential, species-specific approach to the management of conflict with non-human primates in public places.

Management of the Conflict

Control of conflict with non-human primates necessitates the use of both preventive and reactive management methods. The MoEF, GoI (April, 2005) has currently elucidated on an Action Plan for the control of this conflict, suggesting that translocation and the sterilization of male non-human primates be implemented as part of the core management strategy.



Macaca radiata diluta

Problems with translocation

The IUCN defines translocation as the movement of living organisms from one area for free release in another. However, conservation-based translocation is quite distinct from the literal meaning of the term. IUCN guidelines (Woodford, 2001) for conservation-based translocation state:

“Given that any release incurs some risk, the following precautionary principle should be followed:

If there is no conservation value in releasing confiscated animals to the wild or no management program exists within which such release can be undertaken according to conservation guidelines, the possibility of accidentally introducing a disease, or behavioral & genetic aberrations that are not already present in to the environment, however unlikely, should rule out returning confiscated specimens to the wild as placement options.”

Translocation is essentially a conservation technique applied in management of endangered species which have been locally extirpated from their historic range, and may be carried out to augment existing populations or as a means of species re-introduction under captive breeding programs where it is deemed that every individual is critical to the survival of the species.

IUCN Guidelines also state:

It is now widely recognized by wildlife veterinarians that every wild creature that is the subject of a translocation or rehabilitation release must not be regarded as just a single animal but rather as a package containing an assortment of potentially dangerous viruses, bacteria, protozoa, helminthes and arthropods, any of which may become pathogenic in new situation involving stressed individuals in a changed environment.

Being held in captivity for weeks together introduces behavioral modifications in wild animals and makes them prone to disease and parasitic infestation. The latter may actually make the animals prone to attack humans after release and thus create conflict situations at release sites. This is generally compounded by faulty management like improper cage design & repeated exposure to humans.

Problems with sterilization of male non-human primates

As a means of population control it is virtually useless to sterilize male non-human primates, because any immigrating or any intact male could potentially impregnate every female in the population - non-human primates are polygynous. Females, not males, need to be the target of sterilization, because they are the “bottle-necks” to population growth. Secondly, testosterone levels in male non-human primates motivate male aggression among males that contest for female mates. Non-human primates (males and females) are aggressive towards humans not for reasons of mating (unlike elephants in musth, non-human primates don't just lash out at moving creatures).

The authors of this document have jointly attempted to prepare an alternative plan to the one currently proposed, while considering aspects of management of conflict with non-human primates from a scientific, veterinary and legal perspective.

Proposed

Prevention and control of conflict with Non-Human Primates in public places Rules, 2005

Under the sub-section (b) (ii) of section 12 of the Wildlife (Protection) Amendment Act, 2002

1. Short title and commencement:

- a. These rules may be called the Prevention and Control of Conflict with Non-human Primates in Public Spaces Rules, 2005.
- b. They shall come into force on the date of their final publication in the Official Gazette.
- c. Non-human primates are listed under various Schedules of the Wildlife Protection Act and as such shall be governed by the

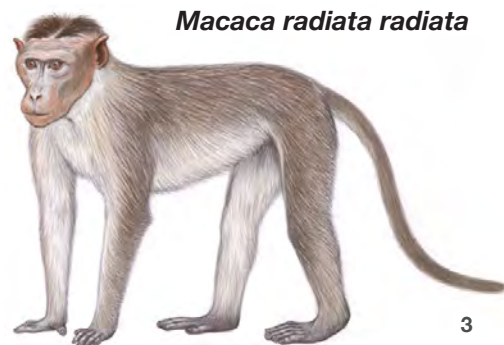
laws specified therein. These present Rules however, shall relate to non-human primates in conflict in public places.

2. Definition:

In these Rules, unless the context otherwise requires, -

- a. “Non-human Primates” means the species listed in Annexure I;
- b. “Conflict” means a situation where citizens have cause for complaint arising from non-human primates in public spaces that may create nuisance, harassment and/or biting which results in human injury and/or damage to crops and other private property;
- c. “Relocation” means the transfer of non-human primates to permanent shelters, depending on species as described in the categories provided in Annexure I;
- d. “Public spaces” means a place where the people in general have an access and wherein they congregate and/or a place owned by a public authority and open to the public in general (from CrPC, Section 133 (1)(a)).
- e. “Act” means the Wildlife (Protection) Amendment Act, 2002;
- f. “Ministry” means the Ministry of Environment and Forests & CC;
- g. “Forest Department” means the local Forest Authority;
- h. “Committee” means a committee appointed under these Rules;
- i. “Local authority” means a municipal committee, district board or other authority for the time being invested with the control

Macaca radiata radiata



and administration of any matters within a specified local area;

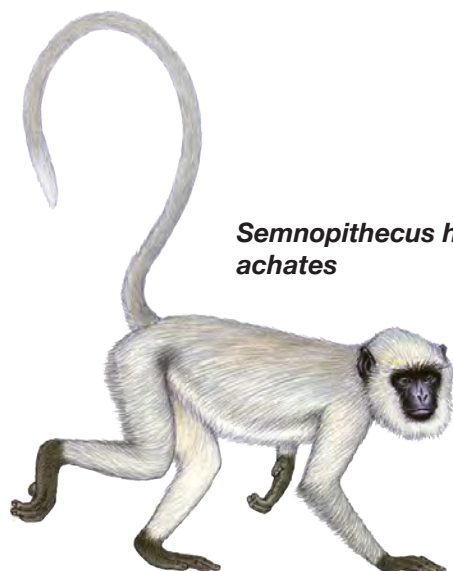
j. “Accredited agency” means an NGO recognized by the Ministry of Environment and Forests & CC;

k. “Veterinary doctor” means a person holding a degree from a recognized veterinary college and registered with the Indian Veterinary Council.

3. Formation of Central Monitoring Committee

A Central Monitoring Committee consisting of the following persons shall be constituted by the Ministry of Environment and Forests & CC:

- a. The Secretary, Ministry of Environment and Forests who shall be the ex-officio chairman of the committee;
- b. The Member-Secretary, Central Zoo Authority of the Ministry of Environment and Forests & CC;
- c. A primatologist or veterinarian from the faculty of the Wildlife Institute of India who shall be responsible for providing the Committee with conservation requirements of the species;
- d. A representative of the National Institute of Communicable Diseases (NICD), New Delhi who shall provide the Committee with annual estimates of the sylvatic cycle of rabies transmission to humans;



Semnopithecus hypoleucos achates

e. A representative from the faculty of the Indian Veterinary Research Institute (IVRI) with expertise in wildlife medicine or an independent, private practitioner with the required expertise as the Ministry may see fit;

f. An accredited individual with expertise in primatology to be appointed by the Ministry, preferably a member of the IUCN Primate Species Specialist Group;

g. A representative of an accredited, national-level NGO with wildlife experience.

4. Functions of the Central Committee

The committee constituted under Rule 3 above shall be responsible for planning, prevention and management of conflict with non-human primates in accordance with these Rules at the National level. The Committee shall:

- a. Collate results of bi-annual surveys of non-human primate populations and complaints of non-human primate-related nuisance submitted by Local Committees constituted under Rule 5 below. For this purpose, the Central Committee shall convene for a minimum of twice in a year, during which time these Rules shall themselves be subject to re-assessment, revision or amendment as may be determined by the flow of information from the bi-annual surveys;
- b. Monitor control measures implemented in different States to analyze their impacts on reduction in conflict levels. The Central Committee may suggest corrective and/or remedial measures as may be necessary from time to time;
- c. Issue guidelines for operations involving the control, capture, transportation, sheltering, vaccination and treatment of non-human primates in conflict situations;
- d. Monitor the functioning, maintenance and management of permanent shelters for relocated non-human primates;
- e. Facilitate training programs for Forest Department Staff, zoo personnel, local NGOs and veterinarians on survey techniques, trapping procedures and veterinary protocols to be implemented.

Such training shall involve certification, and only certified personnel shall be involved in procedures necessitating control of conflict with non-human primates;

f. Maintain a National Registry of all non-human primates maintained in shelters. This Registry shall also record all non-human primates maintained in Research Laboratories for bio-medical research purposes. The Committee shall endeavor to work with the CPCSEA to ensure that all bio-medical research requirements that are based on primate models shall be met using animals housed in shelters.

g. Keep a watch on national and international developments in the field of research pertaining to non-human primates and their control and management, development of vaccines and cost-effective methods of control etc.

5. Formation of Local Committees

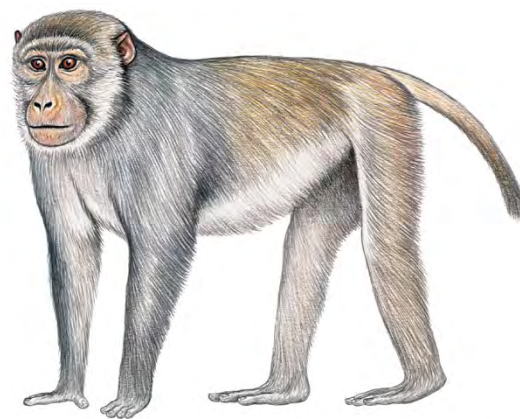
Monitoring committees consisting of the following persons shall be constituted at State level by the Local Authority

- a. Commissioner/Chief of the Local Authority who shall be the ex-officio chairman of the committee;
- b. The Wildlife Warden;
- c. A representative of the Public Health Department of the Local Authority;
- d. A veterinary doctor with expertise in wildlife medicine;
- e. A representative of an accredited local NGO;

6. Functions of the Local Committee

The committee constituted under Rule 5 above shall be responsible for planning, prevention and management of conflict with non-human primates in accordance with these Rules. The Committee shall:

- a. Conduct bi-annual surveys of non-human primate populations within its jurisdiction through independent, accredited agencies recognized by the Ministry. Surveys must provide information



Macaca mulatta

on the total number, number of loners and sub-groups and their age- and sex- wise distribution;

b. Take steps to monitor conflict with non-human primates and maintain detailed records of complaints of non-human primates arising from the local public;

c. Oversee operations involving the control, capture, transportation, sheltering, vaccination and treatment of non-human primates according to Guidelines issues by the Central Committee;

d. Issue instruction regarding the prevention of feeding of non-human primates in public spaces;

e. Create awareness, solicit cooperation and public funding;

f. Keep abreast of national and international developments in the field of research pertaining to non-human primates and their control and management, development of vaccines and cost-effective methods of control etc.

7. Preventive management

a. *In situ* Sterilization of female non-human primates

Based on the results of bi-annual surveys, non-surgical alternatives to sterilization (using the immunocontraceptive vaccine Porcine Zona Pellucida, PZP) shall be provided intra-muscularly after the animal has been physically restrained and anesthetized. Attempts shall be made to target at least 70% of the resident female non-human primates occupying any public place. Following the specified recovery time, the animals shall be

released within the area from which they were trapped. The procedures shall be conducted under veterinary supervision by an authority of the Forest Department and shall be continued for as long as the Local Committee deems necessary. Detailed procedures to be followed during implementation of this procedure are provided in Annexure II;

b. Active prevention of feeding in public spaces

The Local Authority shall issue and enforce regulations that prevent the public from feeding non-human primates in public spaces and areas inhabited by non-human primates, including lands under the authority of the Forest Department. The Public shall be informed of these rules by their publication in at least two local language dailies, public announcements, signage or by any additional means as the Committee deems fit. Such rules shall include instructions for the disposal of garbage, and installation of such devices as may be suggested by the Committee to keep public spaces monkey-proof. Because the feeding of non-human primates happens to be a religious and cultural practice widely prevalent in the country, these Rules should ensure that such activities occur only under controlled circumstances in order to prevent conflict with the public at large. Pilgrims, worshippers and other members of the public should instead be directed to complete their supplications within the premises of permanent shelters that have been established under these Rules

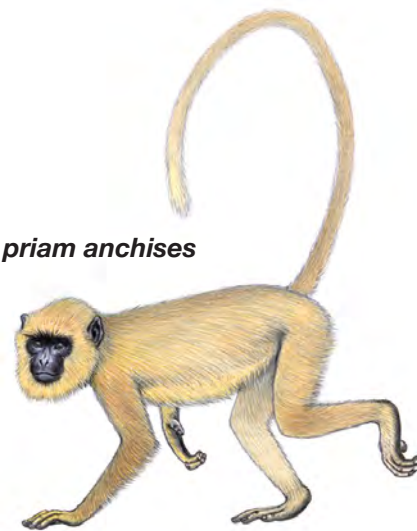
8. Reactive management

a. Capture

Non-human primates shall be permitted to be captured for relocation only when complaints from the local public are deemed by the Local Committee to have exceeded tolerance limits.

The Local Authority shall make available to the public a telephone number and/or address to which the public may report any complaints with regard to non-human primates. The Public Health Department of the Local Authority shall maintain detailed records indicating the nature and

Semnopithecus priam anchises



frequency of such complaints to enable monitoring and prompt action when tolerance levels are breached. Following monthly analysis of these records, the Local Committee may issue instructions for the capture and removal of specified numbers of non-human primates from within specific public spaces.

Only teams constituted of staff of the Forest Department, and under the supervision of local primatologists/scientists where available, shall conduct the capture operations. Detailed procedures to be followed are provided in Annexure III. Such teams may approach the Ministry for funds for acquisition of equipment necessary for capturing non-human primates that include, but are not limited to, (i) blow-pipes; (ii) walk-in traps; (iii) throw nets; and (iv) transportation cages.

Procedures for control in cases of crop damage caused by populations resident part- or whole-time within RF, PF, USF or WLS/NP's shall be decided on a case-by-case basis, using (i) *in situ* population control (ii) compensation (iii) any alternative methods as may be determined by the Central Committee in preference to capture and relocation.

b. Relocation

Non-human primates that have been captured following instruction by the Local Committee shall not be released into forested areas and other natural and semi-natural habitats, whether within the State or outside its boundaries.

These animals shall instead, be housed permanently in shelters established for this specific purpose. Such shelters may be maintained and managed by accredited NGOs on approval by the Central Committee, and established near Temples/ other religious places where the public may fulfill their religious obligations (offerings etc.) under controlled circumstances. Land and other facilities may be provided to these organizations at subsidized cost by the Local Authority and/or the Forest Department.

NGOs may approach the Ministry for establishment funds necessary to erect such shelters according to guidelines issued by the Central Committee. Guidelines for the establishment of such shelters are provided in Annexure IV. Annexure V provides guidelines for accredited agencies seeking to establish such permanent shelters. The Wildlife Warden shall be appointed to the Board of any such shelter to be established and shall be responsible for overseeing operations in accordance to provisions of the Act and any such rules, regulations or instructions as issued by the Central Committee.

All non-human primates maintained in such permanent shelters shall be sterilized (using surgical or alternative means) to ensure that populations within the shelters do not exceed the intake limits to be decided by the Central Committee.

9. Application of Rules where local bye-laws etc. exist

If there is in force in any area to which these Rules extend, any Act, rule, regulation or bye-law made under any law for the time being in force by the State or local authority in respect of any of the matters for which provision is made in these Rules, such rule, regulation or bye-law shall to the extent to which:

- a. The conflict with non-human primates occurs on lands under the authority of the Forest Department, be of no effect;
- b. It contains provisions less irksome to the animal than those contained in these Rules, shall prevail;
- c. It contains provisions more irksome to the animal than those contained in these Rules, be of no effect.

Annexure I:

Category A: Species and subspecies to be sterilized and relocated to permanent non-human primate shelters

Species	Common Name	Conservation Status
<i>Macaca radiata diluta</i>	Pale-bellied Bonnet Macaque	Least Concern
<i>Macaca radiata radiata</i>	Dark-bellied Bonnet Macaque	Least Concern
<i>Semnopithecus entellus achates</i>	Western Hanuman Langur	Least Concern
<i>Macaca mulatta mulatta</i>	Indian Rhesus Macaque	Least Concern (R)*
*R - Regional		

Category B: Species and subspecies to be relocated to permanent shelters or conservation breeding centers/zoos as specified by the Central Committee

<i>Macaca fascicularis umbrosa</i>	Nicobar Long-tailed Macaque	Near Threatened
<i>Semnopithecus entellus anchises</i>	Deccan Hanuman Langur	Near Threatened
<i>Semnopithecus entellus entellus</i>	Bengal Hanuman Langur	Near Threatened
<i>Semnopithecus entellus schistaceus</i>	Central Himalayan Langur	Near Threatened

Category C: Species and subspecies to be relocated to conservation breeding centers/zoos as specified by the Central Committee

<i>Semnopithecus (Trachypithecus) johnii johnii</i>	Nilgiri Langur	Vulnerable
<i>Semnopithecus priam priam</i>	Coromandel Grey Langur	Vulnerable
<i>Macaca assamensis assamensis</i>	Eastern Assamese Macaque	Endangered (R)*
<i>Macaca leonina</i>	Northern Pig-tailed Macaque	Endangered (R)*
<i>Trachypithecus obscurus phayrei</i>	Phayre's Langur	Endangered (R)*
<i>Trachypithecus pileatus pileatus</i>	Blonde-bellied Capped Leaf Monkey	Endangered (R)*
<i>Macaca assamensis pelops</i>	Western Assamese Macaque	Endangered
<i>Macaca silenus</i>	Lion-tailed Macaque	Endangered
<i>Semnopithecus entellus hector</i>	Lesser Hill Langur	Endangered
<i>Semnopithecus entellus hypoleucos</i>	Dark-legged Malabar Langur	Endangered
<i>Semnopithecus priam thersites</i>	Grey Langur	Endangered
<i>Trachypithecus geei</i>	Golden Langur	Endangered
<i>Trachypithecus pileatus durga</i>	Orange-bellied Capped Leaf Monkey	Endangered
<i>Macaca arctoides</i>	Stump-tailed Macaque	Critically Endangered (R)*
<i>Semnopithecus entellus ajax</i>	Himalayan Grey Langur	Critically Endangered
<i>Trachypithecus pileatus tenebricus</i>	Tenebrous Capped Leaf Monkey	Critically Endangered
<i>Macaca munzala</i>	Arunachal Macaque	Not Assessed
<i>Macaca thibetana</i>	Tibetan Macaque	Not Assessed
<i>Trachypithecus pileatus brahma</i>	Buff-bellied Langur	Data Deficient
*R - Regional		

Annexure II: Procedures to be followed for *in situ* population control of non-human primates

Dosages, nature of chemicals, veterinary protocols and procedures to be followed during *in situ* population control efforts shall be reviewed, updated and modified as the Central Committee may see fit.

In situ population control programs using immuno-contraceptives are intended to reduce the fecundity of the population over the long term. These Rules, in their current state, suggest the use of Porcine Zona Pellucida vaccine as the immuno-contraceptive for use with non-human primates.

The zona pellucida is the protein layer that surrounds a mammalian oocyte, which must be penetrated by sperm for fertilization to occur. Females are injected IM with an emulsion of

zona pellucida from pig ovaries (Porcine Zona Pellucida, PZP). After inoculation, a females antibody titre is raised sufficiently to block sperm receptor sites on her own ovum, thus preventing pregnancy.

Attempts at *in situ* population control require focused surveys, coordinated trapping, veterinary expertise and follow-up monitoring. No attempts should be made if any of these basic requirements are unavailable or cannot be implemented on site.

Feasibility studies for locations where *in situ* population control can be implemented will be conducted country-wide by a team appointed by the Ministry. This preliminary survey shall be conducted at each location reporting conflict

for a period of at least two months prior to approval of the procedure by the Ministry.

Within each location selected for implementation of an *in situ* population control program, the following teams will be constituted under the authority of the Local Committee:

(i) Survey team

The survey team shall comprise of the following members at minimum:

1. A recognized primatologist or if unavailable, a wildlife biologist or professor of the life sciences from a local University;
2. The Range Forest Officer;
3. Additional staff of the Forest Department/Zoo as may be required.

Such surveys may be contracted out to accredited NGOs that have the required expertise. In all such contracted instances, however, the Range Forest Officer shall be a part of the survey team.

During the survey, the team shall determine group size, number of sub-groups and their composition (age and sex), identification of troop leaders and the number of loners in the area. Movement habits of the troop to be dealt with must be recorded in detail to be able to suggest areas and methods by which efficient trapping can be conducted.

Such surveys shall be conducted at least one month prior to any trapping exercise. During this time, the survey team shall also take the opportunity to educate the general public of the ban on feeding of non-human primates in public places.

(ii) Trapping team

The trapping team shall comprise of the following members at minimum:

1. The Range Forest Officer;
2. Two additional staff of the Forest Department/Zoo with expertise in trapping;
3. A representative of an accredited NGO;
4. A veterinarian, who must be available at all times to deal with any emergencies

The decision on the type of equipment to be used for trapping will depend on local

conditions and expertise available with the trapping team. Trapping efforts must also incorporate suggestions of the Survey Team in order to maximize the number of animals trapped. General guidelines to be followed during trapping are provided in Annexure III.

(iii) Veterinary Team

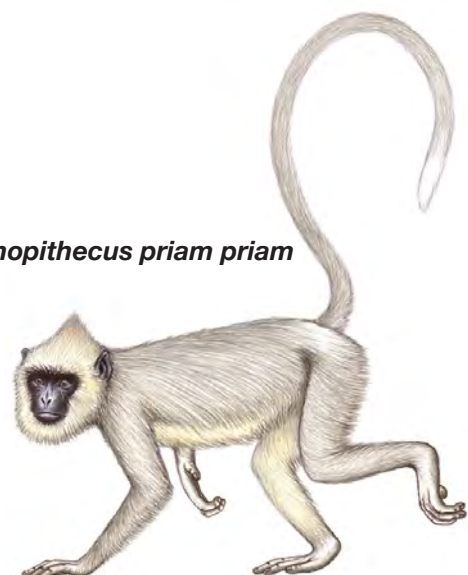
The veterinary team shall be headed by a veterinarian with, at minimum, a graduate degree from a recognized University. The veterinarian shall have the final word on all procedures and methods to be used during the intervention.

In situ population control for non-human primates shall be targeted at females using an immuno-contraceptive vaccine following approval by the Central Committee.

Following the trapping exercise, female non-human primates shall be separated and anesthetized. Physical examination and/or sonographic imaging using hand-held devices shall be used to determine whether the animal is pregnant. Under no circumstances should pregnant females be injected with the immuno-contraceptive. Transponder microchips shall be implanted at the base of the tail to permit identification during subsequent capture, if any, and the unique chip-ID must be recorded in a detailed database containing all records pertaining to that animal.

Non-pregnant female non-human primates shall be immunized with purified 55 kDa glycoprotein from porcine zona pellucida (ZP3) and ZP3 conjugated to the beta subunit of human chorionic gonadotrophin (beta hCG) using adjuvants permissible for human use

Semnopithecus priam priam



(alum, muramyl dipeptide and sodium phthalyl derivative of lipopolysaccharide).

Following delivery of the immuno-contraceptive to all non-pregnant females trapped, the team shall withdraw, but remain within reaching distance of any animal requiring emergency assistance. Veterinary personnel shall remain present on site until all animals have fully recovered.

(iv) Monitoring Team

Members of the Survey Team shall be responsible for conducting detailed monitoring

surveys of troops where *in situ* population control programs are implemented. During these surveys, detailed notes on the behavior exhibited by troops that have been immuno-sterilized are essential. Guidelines for procedures to be followed, data reporting formats etc. shall be provided by the Central Committee. These surveys shall be conducted a minimum of twice a year, and reported to the Local Committee, and thence to the Central Committee, to permit analysis of the scale and need for further interventions.

Annexure III: Guidelines to be followed during capture of non-human primates in conflict situations, within public places

Walk in trap cages or nets may be used to trap non-human primates without breaking family groups. The decision on the type of equipment to be used for trapping will depend on local conditions and the expertise available with the trapping team. Cage traps are sometimes useful in built-up areas, whereas net trapping may be employed in more open areas.

Specific procedures to be followed during trapping shall be prescribed by the Central Committee depending on the results of the preliminary, country-wide survey to be conducted by the Ministry.

Pre-requisites for trap cages:

1. Cages must be light-weight, but care must be taken to ensure that they are sturdy and cannot be manipulated, overturned or tripped by non-human primates from the outside;
2. Bait should not be accessible to non-human primates from the outside of the cage;
3. No sharp projections should be present on the interior of the cage to prevent injury to the trapped animal(s);
4. Trap doors must be designed to ensure that they are self-locking devices;
5. Care must be taken with cage design to ensure that trap doors do not injure the animal(s);
6. Camouflaging of trap cages by innovative means, to maximize trapping of a non-human primate troop

Transportation:

Non-human primates should be tranquilized immediately after trapping. Weight, sexing, examination for ecto-parasites, treatments for external wounds and insertion of a Transponder Microchip should be applied while the animal is under anesthesia. No animal shall be transported without anesthesia.

Transportation cages should be of minimum dimension 3.5'(L) x 3.0'(B) x 3.0'(H), constructed of mild steel or alternatives. Only one animal can be transported in one cage at a time. Adequate access to water and sufficient air circulation must be provided in the vehicle in which cages are to be transported. The Range Forest Officer from the location where the animals are captured, and a veterinarian must accompany all transportation vehicles. The transportation vehicles should be covered so as to provide adequate shade to the animals.

Annexure IV: Guidelines for the establishment of permanent non-human primate shelters

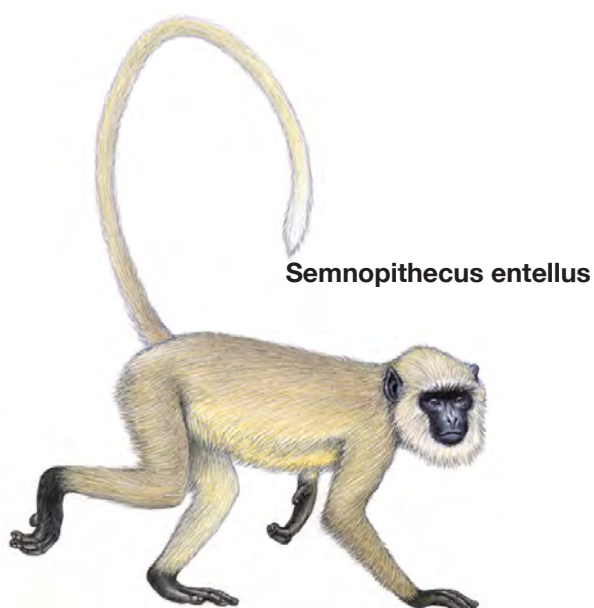
Housing Facilities

The minimum space requirements for holding non-human primates shall follow the Minimum Prescribed Size for Feeding/Retiring Cubicle for Important Mammalian Species of Captive Animals as specified by the Central Zoo Authority, viz:

	Minimum size of outdoor enclosure (sq.m) per pair	Minimum extra area per pair of additional animals (sq.m)
Macaques and Langurs	500.0	20.0

Enclosures must be made escape-proof. The use of locally available materials (such as 8 gauge chain-link fencing of maximum mesh size of 2 inches) will ensure low-cost, easily maintained structures. The enclosures should permit adequate visual access for shelter personnel, while being as unobtrusive as possible for the non-human primates. At least three-quarters of each holding facility shall remain open-to-air, and must replicate natural habitat. Hiding places and other furniture (ropes, etc.) should be provided within the cages.

Placing more than one social group (extended family) of non-human primates in one enclosure will invite fighting among the two or more groups, and fights can be lethal. Linked enclosures (using overhead runs and pathways)



may be used to house larger troops. Enclosures should also be species specific, and no intermixing of species or subspecies shall be permitted.

The shelter must have provision for isolation cages/enclosures where aggressive non-human primates can be housed in isolation. Facilities for chemical and physical restraint must be available within the shelter. Squeeze cages must be available and located at strategic points.

Macaques can eat a variety of foods, but langurs need large amounts of fibrous greens from leaves. Some langurs are very difficult to feed in captivity because for their eclectic diets. Commercially available primate foods (such as ZUPREEM) may be provided as an alternative. Shelters must be able to provide for all food requirements.

Capacity of Shelters

Each shelter shall have a pre-determined maximum capacity of non-human primates to be housed, and under no circumstances will a shelter be permitted to house extra numbers.

Sterilization of inmates

No breeding shall be permitted within permanent shelters. All non-human primates to be housed in shelters shall be permanently sterilized by means of:

1. Males

No castrations shall be permitted because this procedure is likely to change the behavioral characteristics of the troop housed within an enclosure. If a decision is taken to sterilize male non-human primates within shelters, ALL males must be sterilized by vasectomy only.

2. Females

If females are to be sterilized, a combination of reversible methods, such as the use of immuno-contraceptives, and separation shall be implemented.

Quarantine facility

Quarantine is the separation of newly received animals from those already in a facility

until the health of the new animals can be reviewed. The purpose of such isolation is to prevent the introduction of infectious disease to the resident captive population. In addition, during this period new animals can become accustomed to their new diets and environment, and baseline veterinary data can be gathered (IUCN SSC, 2002).

A minimum 30-day quarantine period shall be imposed on all new entrants into a shelter. Quarantine facilities should be separate and away from regular housing - ideally, at least 20 meters should separate newly arrived animals from resident animals and a physical barrier

Annexure V: Guidelines for Application for Funds for the establishment of Permanent Monkey Shelters

1. Agencies applying to establish shelters must prove expertise in being able to cater to the requirements of maintaining non-human primates as provided for in Annexure IV.
2. The organization should have at least two years of experience or working in the related area or should show evidence of competence to take up the proposed scheme.
3. It should not be run for profit to any individual or body of individuals.
4. It should have a property constituted Managing Body with its powers, duties, and responsibilities clearly defined and laid down in a written constitution.
5. A copy of the, site-plans/layout of the proposed building (rough sketch giving a broad indication of the shelter to be constructed and area to be covered etc.) and estimated cost of construction should be submitted. After the proposal has been approved in principle, the institution/organization will have submit blue-prints of plan with detail structural estimates that the construction the building has been permitted. The estimates need not however be approved by State P.W.D. A certificate by the State Government/Approved Value that the rate are not more than the prevailing P.W.D schedule of rates for similar work should suffice.
6. The institution must complete the building within a period of two years from the date of

placed between them. Quarantine facilities should be sited downwind of other animals, where wind is predictable, and downstream of other animals, where water flow is predictable.

Veterinary services

A qualified veterinarian should be present at all times at the shelter.

Additional facilities

The Shelter shall provide for structures such as a pre-operative room, Operation Theatre, post-operative room, X-ray room and laboratory facilities.

the receipt of the first installment of grant-in-aid unless extension is granted by the Central Government.

7. A certificate shall also be furnished at the time of the application that a site which is neither already under any lease nor notified by any legislation of the respective state govt., has been acquired for the construction of a building by the voluntary organization/institution concerned. No grant shall be sanctioned unless a site has already been acquired. No portion of the grant shall be utilized for purchase of land.

8. After the completion of the shelter, the organization shall furnish to the Central Government copies of the following documents:

- a. A certificate to the effect that the facility has been completed accordance with the approved plans and estimates, and
- b. A statement of expenditure incurred on the construction of facility, duly audited by the authorized auditors.

9. Extent of Assistance

Financial assistance will be given up to 70% of the approved cost on recurring and non-recurring expenditure and the balance of 30% must be met by the voluntary agency or any other organization, but preferably by the voluntary organization itself. In the case of an organization working in relatively new areas where both voluntary and Government effort is very limited but the need for the service is very

great the Government may bear 100% of the cost.

In the case of shelter grants, the Government grant will be limited to Rs. 25.0 lakhs. In so far as non recurring grant in aid under the scheme is concerned a ceiling of Rs.10.0 lakhs per project shall be observed. However, in exceptional cases the ceiling amount may be relaxed by the Secretary (MoEF) after obtaining the concurrence of the Finance Department.

In so far as grants-in-aid other than for the purpose of building, the pattern of expenditure under this scheme for both existing as well as new projects shall broadly conform with the pattern of expenditure on similar items approved for similar schemes of the Ministry.

However, in exceptional cases deviation may be allowed in consultation with the Finance Department and with the approval of secretary (MoEF).

10. Application and Sanction

Any organization desirous to apply for grant-in-aid under this program will send its application in the prescribed proforma to an authority or body designated for the purpose by the Ministry of Environment and Forest.

On receipt of an application for grant-in-aid inspection will be undertaken by the prescribed agency. On the basis of the inspection and audit of the prescribed agency the proposal will duly be processed.

11. Inspection

The Ministry from time to time will specify the nature, type and periodicity of the inspection and audit and the agency which will be designated to carry out the inspection and audit.

12. Release of Grants-in-aid

Grants will be given in two installments. The first installment will cover 50 per cent of the sanctioned amount and will be released on receipt of the proposal on prescribed Proforma and on finding it correct. The remaining 50 per cent will be released as a second installment. An organization shall, before it receives assistance from the Government of India, execute a continuity bond valid for 5 years in the prescribed Performa to the effect that in the event of its failure to comply by any or

all conditions of the grant it shall be able to refund the whole or such part of the grant as the Government may decide, with interests thereon. The organization shall maintain separate accounts of the grants received under this Program. It shall always be open to check by an officer/agency deputed by the Government. It shall also be open to test check by comptroller and Auditor General of India at his discretion.

13. Re-appropriation

The Institution may re-appropriate expenditure from one sanctioned sub-head to another sub-head to a maximum of 25% in either case. Such re-appropriation will be within the overall sanctioned amount. No expenditure shall, however, be incurred by re-appropriation of savings on items not sanctioned by the Ministry. Savings shall not be re-appropriated for incurring expenditure on staff that has not been sanctioned by the Ministry. All permissible appropriation should be reported to the Ministry. Prior approval for such re-appropriation is not necessary.

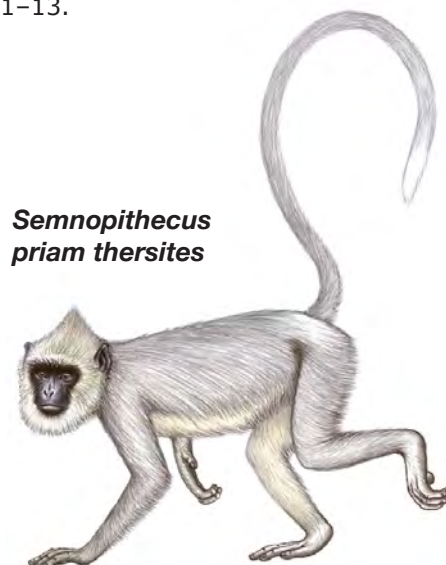
14. Changes in Approved Projects

No major changes will be matter therein even if no additional costs are involved unless the prior approval of the Ministry has been obtained.

15. Termination of Grants:

If the Ministry is not satisfied with the progress of the Project or it finds that these rules are being seriously violated, it reserves the right to terminate the grant-in-aid.

Citation: Singh, M., I. Malik, W. Dittus, A. Sinha, A. Belsare, S. Walker, S. Molur, B. Wright, J. Lenin & S. Chaudhuri (2019). Action plan for the control of commensal, non-Human primates in public places. Submitted to the Ministry of Environment & Forests, Government of India in 2005. *Zoo's Print* 34(11): 1-13.



Semnopithecus priam thersites