

HELPING THE MAHARASHTRA FOREST
DEPARTMENT RESCUE OR TREAT ENDANGERED
WILD CARNIVORES.



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Kaati Trust



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CONTENTS

| | |
|---|----|
| Acknowledgements | 3 |
| Summary | 4 |
| Introduction | 5 |
| Study area | 5 |
| Modus Operandi | 6 |
| Result and Discussion | 6 |
| Recommendations | 11 |
| Table 1 - <i>Data</i> | 12 |
| Appendix 1 - <i>Summary of our visits</i> | 14 |
| Appendix 2 - <i>A copy of the report we provide at each visit</i> | 36 |
| Appendix 3 - <i>A copy of the physical examination sheet</i> | 37 |
| References | 38 |

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Summary

Our work in the last two years with the leopards caught in conflict situations in W. Maharashtra indicated that inappropriate methods were commonly used to deal with the wild caught leopards, both in terms of husbandry practices as well as veterinary care.

The goals of this project were to

1. Help the Forest Department in the rescue or medical treatment of any endangered carnivore.
2. Involve the LDO's (Livestock development officer) and other interested veterinarians in wildlife emergencies so that they are sensitized to the needs of wild animals and can help the Forest Department effectively in future situations.
3. Microchip the wild caught leopards and provide recommendations that will assist the Department in dealing with the conflict issue.

Our ultimate goal has been to bring out a change in the way wild carnivores are treated when they require human intervention and this project was a step in that direction. Based on this work, we would like to recommend that the following be carried out for other high conflict states in India.

1. Teams of trained wildlife veterinarian and biologists should be set up in other high conflict states to assist the Forest Department in dealing with wild carnivores that require human intervention.
2. Simple guidelines on captive management of Schedule I species that are most commonly encountered in conflict situations need to be formulated and distributed to all captive facilities in the country, including zoos.
3. Periodic wildlife orientation courses have to be held in veterinary colleges in high conflict states to develop this very important resource base.

Introduction

Human-leopard conflict is a problem faced by many states today. In areas where conflict incidents occur, it is not uncommon to find leopards in wells, houses, snares, etc. Trapping of the leopards in response to conflict is also the most common management strategy used in India. All these situations lead to the presence of the animals in captivity for varying periods. Often the process of capture leads to injuries on the animal and it is important that these be dealt with effectively especially if the animals are going to be released back into the wild. Furthermore, it is important that biologically relevant recommendations are provided to the managers to assist in better management of the conflict situations. This project was an attempt to provide the above support to the Maharashtra Forest Department.

Study Area

The areas covered in this project lie on the eastern flanks of the Western Ghats, mainly in the Ahmednagar Forest Division. This is the southern most division of the Nashik Forest circle. It shares its administrative borders with the Junnar Forest Division to the south, the evergreen forests of the Western Ghats to the west and the W. Nashik territorial forest division to the north. The 1717 km² area is administered by the territorial wing of the Forest Department which looks into plantations, social forestry etc., in the region. The region used to support dry deciduous forests which have changed to lush croplands following numerous irrigation projects in the region. Cash crops such as sugarcane, maize, fruit plantations and vegetables are grown in the area. The Pravara River which originates in the Western Ghats flows through the Division irrigating the area where the leopards inhabit. The landscape consists mainly of rural inhabitations and crop fields. Large number of feral dogs are present in the villages, as well as feral cattle and pigs.

Modus Operandi

We were informed by the Forest Department whenever they required help in treating or microchipping leopards or other wild animals. We would provide veterinary support as well as note down measurements and weight of the animals. A report of the entire procedure and recommendations were provided on the spot to the officer in-charge.

Results and Discussion

The need to set up and maintain a team of a trained veterinarian and biologist to attend to wildlife emergencies in high conflict states

A chronic human-leopard conflict situation usually goes hand in hand with large numbers of leopard trappings and releases. At the same time, situations where leopards fall into wells or enter houses and need to be rescued are also not uncommon. At such times, the Department is in need of trained people who can provide appropriate medical care for the injured leopards as well help in rescuing the animals from snares etc.

The biologist's role is also very important to provide scientifically relevant information so that the conflict incident can be better tackled. Moreover, a standardized procedure and data gathering effort can also be undertaken at the same time since very little is known of wild animals, especially when they come into a conflict situation with people.

The role of local veterinarians

The involvement of local veterinarians is extremely important since they are often called by the Department when a wild animal requires help. However, they lack the necessary training and

therefore inappropriate methods and treatments are commonly used. It is important that this resource base is trained across India so that wildlife treatment in the future is more easily available.

The most common practice for treating wild carnivores is the use of squeeze cages, which we strongly discourage (*see example 2 in Appendix 1*). Squeeze cages are meant for animals that are used to humans (zoo animals etc). Squeezing results in the wild carnivore coming into very close and unpleasant contact with many people. Such a close contact could have an adverse impact on the animal affecting it following its release. In the case of leopards it might be disastrous considering it is also capable of living close to people. The only recommended method for restraining wild carnivores is chemical immobilization.

Leopard individuals trapped in conflict situations

During the course of this project, 20 leopards were trapped in conflict situations. Most were involved in repeated livestock attacks or had fallen into open wells. Only three individuals were trapped following an attack on a person. Unfortunately there is no scientific methodology in place which can conclusively identify the leopard individual which attacked the person. Moreover, data on whether the attack was accidental or pre-meditated needs to be collected as part of the panchanama procedure. In the absence of the above, more leopards than required will be trapped and this could even lead to increased leopard numbers near the site of capture as well as the site of release (*see Athreya et al. 2004*). A low level of trapping can increase felid numbers near the site of capture which is a consequence of their biology (Athreya et al. *In press*). Moreover, population increases can occur due to the translocation procedure which basically aims to increase populations near the site of release. Unfortunately translocations in India are commonly used to deal with problem animals and policy changes need to be made to address this issue.

One instance of large post-release movement was obtained from a leopardess from Junnar who was released 300 km away in Yaval WLS and was re-captured 100 km towards the direction of Junnar, in Chalisgaon, after a period of 4 months. Her case also highlights the importance of post-release monitoring and we recommend that the fate of released wild animals (of any species) be actively monitored.

Details of the leopards

Morphometry

When possible the animal was weighed and measurements of tail length (TL), body length – BL (nose tip to base of tail), hind leg length (HL) and fore leg length (FL) taken. The weight of the anaesthetized leopard was taken by slinging the hammock with the animal onto a weighing scale (*see example 1 in Appendix 1*). The length measurements were taken with a measuring tape.

The animals were divided into four age classes; cubs, young, adults [divided into two sub-classes – (i) young adults and (ii) adults] and old adults, based on their dentition and body size.

Cubs: The only cubs we encountered were those caught with their mother (*see example 9 in Appendix 1*).

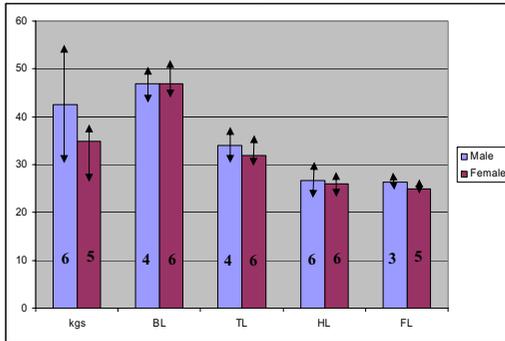
Young: Dentition very white and canines very pointed.

Young Adult (*see example 11, 14 in the Appendix 1*): These are animals with whitened dentition, canines sharp but not like those of the young. Usually all these animals have a groove running along the canine. Most of the animals we encountered fell in this category.

Adult (see example 15 in the Appendix 1): The teeth are no longer white, the canines not sharp.

Old Adult: The teeth are highly yellowed and damaged. The skin is also faded. The only individual without any canines was 00-0658-BC7C but her skin condition and appearance indicated that she was not an “old” individual (see example 10 in Appendix 1). Also, her loss of canines was not very recent (unlikely to have occurred during the trapping process). She was trapped following the death of a little girl.

Figure 1: Morphometry of leopards.
(n = no. of individuals sampled, is given in the figure).



Of the six adult males which could be weighed, the heaviest was 65 kg and the heaviest female was 45 kg (n = five). She was captured with her cubs which she had placed in a wheat field near the town of Sangamner. All the three cubs were male and were about a month old at time of capture (see example 9 in Appendix 1).

Tranquilisation procedures

Whenever tranquilisation was required (either for treatment, removing a snare or microchipping) the animal was darted with a blowpipe using 0.5-1mg/kg Xylazine and 4-5 mg/kg Ketamine. The weight of the animal was estimated visually. Once the animal was completely immobilized (its responses were checked with the snare) then the required procedure was carried out. The cages were also cleaned from the inside while the animal was taken out. Recommendations were provided on better cage hygiene as well as feeding procedures. These we have found have usually been adhered to by the local officers.

Every 10 minutes, the respiration rate (observing the number of times the rib cage rose and fell), the heart beat (placing the hand over the heart region) and the rectal temperature (using a digital thermometer placed in the rectum) would be monitored (see Appendix 3). This task was assigned to the local veterinarian if s/he was present. Seizures were noted only in one leopard – a known effect of the drug Ketamine. This was treated immediately by an IM injection of Diazepam. Water was sprinkled on the eyes of the immobilized animals since they remain open during anaesthesia using Ketamine and Xylazine.

On finishing our work (not more than 30 minutes), we would place the animal inside the cage and wait until the animal showed signs of recovery (usually 1.5 – 2 hours following the first dart).

Recommendations

1. Similar teams consisting of a trained veterinarian and a biologist should be set up in high conflict states to assist the Forest Department to better deal with wildlife emergencies. Ideally such teams should be present within the Forest Department and it is important that methods of creating and sustaining these teams be created as soon as possible, across India.

2. There are no standardised animal husbandry guidelines followed across India, either in zoos or in rescue centres. Often animals are over fed and not provided supplements. In the case of animals maintained in permanent captivity this leads to problems such as bone metabolic disease. Furthermore cleaning agents which are toxic for felids are commonly used (e.g., phenyl). In our experience, the Forest Department on being informed do make the necessary changes. Therefore simple booklets which provide such information would be of great use to the managers.

3. The knowledge base of the local veterinarians should be improved. Often the awareness of how to deal with wild animals is not present and even wrong treatments are common. For example, NSAIDS (Non steroid anti-inflammatory drugs) which are contra-indicated for felids are commonly used. This can be achieved only by providing veterinary students wildlife exposure and then allowing those interested in wildlife medicine to obtain training (as interns?) at rescue centres/zoological parks.

Table 1: Summary of information on all the animals we have treated in the Wild-Aid RAP.

| Date | Place | Species | Chip # | Sex | Age class | Fate | Action |
|-----------|----------------|------------------|-------------------|-----------------|--|---|------------------------|
| 30 Dec 04 | Sangamner | <i>P. pardus</i> | 00-063B-1FB6 | M | Adult | Released in wild | Treatment and chipping |
| 30 Dec 04 | Sangamner | <i>P. pardus</i> | 00-063B-02A1 | M | Young adult | Released in wild | Treatment and chipping |
| 30 Dec 04 | Sangamner | <i>P. pardus</i> | 00-063D-9E86 | M | Young adult | Released in wild | Treatment and chipping |
| 30 Dec 04 | Junnar | <i>P. pardus</i> | 00-063B-3F95 | F | Adult | Translocated leopardess that was recaptured | Checking for chip |
| 30 Dec 05 | Junnar | <i>H. Inacna</i> | | F | | Released at site of capture | Treatment |
| 6 Jan 05 | Junnar | <i>P. pardus</i> | 00-063B-6AF5 | M | Adult | Recently trapped and died | Post mortem |
| 17 Jan 05 | Junnar | <i>P. pardus</i> | Not chipped | F | Adult | Injured in MVA and subsequently died | Treatment |
| 3 Feb 05 | Sangamner | <i>P. pardus</i> | 00-063E-AEF7 | F | Young adult | Sent to rescue centre | Treatment and chipping |
| 3 Feb 05 | Sangamner | <i>P. pardus</i> | 00-063D-B493 | F | Adult | Sent to rescue centre | Treatment and chipping |
| 8 Feb 05 | Nashik | <i>P. pardus</i> | 00-063B-E952 | M | Young adult | Released in wild | Treatment and chipping |
| 8 Feb 05 | Sugaon Nursery | <i>P. pardus</i> | 00-065D-A0A9 | F | Young adult (not had cubs before) | Sent to rescue centre | Treatment and chipping |
| 21 Feb 05 | Kolhapur | <i>P. pardus</i> | Leopard skin, yng | Uk ¹ | Young | | Checking for chip |
| 22 Feb 05 | Sangamner | <i>P. pardus</i> | 00-0658-DIDC2 | F | Adult with three cubs | Released in wild | Treatment and chipping |
| 22 Feb 05 | Nashik | <i>P. pardus</i> | 00-0658-BC7C | F | Adult (Old adult? All canines blunt or broken) | Sent to rescue centre | Treatment and chipping |
| 27 Mar 05 | Sangamner | <i>P. pardus</i> | 00-0658-DD78 | M | Large adult | Sent to rescue centre | Treatment and chipping |
| 27 Mar 05 | Sangamner | <i>P. pardus</i> | 00-0658-BE28 | F | Young adult (not had cubs before) | Sent to rescue centre | Treatment and chipping |
| 27 Mar 05 | Sangamner | <i>P. pardus</i> | 00-0658-C53A | F | Adult but very small | Sent to rescue centre | Treatment and chipping |

¹ Unknown

| Date | Place | Species | Chip # | Sex | Age class | Fate | Action |
|-----------|------------------------|--------------------------------------|--|--------|--------------------------------|--------------------------------------|---|
| 28 Mar 05 | Igatpuri Aurangabad | <i>P. pardus</i> <i>P. pardus</i> | 00-065D-CA37 Animal fallen in well in Osmanabad | M M | Young adult Large adult | Released in wild In zoo | Treatment and chipping Checking for chip |
| 28 Mar 05 | | | | | | | |
| 17 May 05 | Nashik | <i>P. pardus</i> | 00-065D-824F | M | Young adult | Released in wild | Treatment and chipping |
| 9 Jun 05 | Nashik | <i>P. pardus</i> | 00-065D-8C36 | M | Large Adult | Sent to rescue centre | Treatment and chipping |
| 29 Jun 05 | Sangamner | <i>P. pardus</i> | 00-065D-9457 | M | Adult | Released in wild | Treatment and chipping |
| 26 Jul 05 | Sangamner | <i>H. hyacin</i> | 00-065D-C494 | F | | Released at site of capture | Treatment and chipping |
| 12 Aug 05 | Shrirampur | <i>S. entellus</i> | | M | | Problem situation | Advising FD |
| 22 Aug 05 | Kolhapur | <i>P. pardus</i> | Two leopard skins, Yng | Uk | Young | | Checking for chip |
| 23 Aug 05 | Bhimashankar | <i>B. gaurus</i> | | Uk | | Reappeared in area after 12 years | Assist the Department in deciding POA. |
| 26 Sep 05 | Sangamner | <i>P. pardus</i> | 00-065D-7414 | F | Adult (not had cubs before) | | Treatment and chipping |
| 26 Sep 05 | Sangamner | <i>P. pardus</i> | 00-0658-C032 | F | Adult (not had cubs before) | | Treatment and chipping |

Appendix 1

Summary of our visits

1. 30th December 2004:

Place: Nimbala Nursery, Ahmednagar Forest Division, Maharashtra.

Three male leopards trapped in human dominated areas and slated for release into the wild were microchipped. The tail wound of one of them was treated.

The doctor, LDO and Forest personnel measuring the weight of the leopard.



2. 30th December 2004

Place: Manickdoh Rescue Centre, Junnar Forest Division, Maharashtra.

A hyaena was found in Junnar with bite wounds on legs and abrasions on mouth and face, she was treated. Leopardess trapped in Chalisgaon, Jalgaon, was checked for microchip and was found to be a Junnar animal released in Yaval in October 2003. Report submitted to the PCCF (WL).



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MRC staff helping the doctor

3. 6th January 2005.

Place: Manickdoh Rescue Centre, Junnar Forest Division, Maharashtra.

We were called on the night of the 5th of January 2005, to check a leopard sent to MRC (Manickdoh Rescue Centre) which was trapped in Khanapur, Pune Division in December 2004. However, he died late in the night. Next morning a post mortem examination was conducted and samples sent for laboratory analysis.



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4. 17th January 2005.

Place: Manickdoh Rescue Centre, Junnar Forest Division, Maharashtra.

A leopardess was captured in Ghodegaon range of the Junnar Forest Division on the night of the 16th. She was paralysed from the waist downwards. It was thought that she was involved in a motor vehicle accident.

The hyaena was also checked. He had almost completely recovered. A recommendation was provided that he be released close to the area where he was found within a week's time.



5. 3 February 2005

Place: Nimbala Nursery, Sangamner, Ahmednagar Forest Division.

A female leopard was trapped in a snare set for wild pig in a sugarcane field in Sangamner on 27th January 2005. We were called to treat her and insert a chip. The wound was washed, treatment given, physical measurements taken and chip inserted (00-065E-AEF7). The cage was cleaned.

Washing the paw prior to treatment.



6. 3 February 2005

Place: Nimbala Nursery, Sangamner, Ahmednagar Forest Division.

Another female who had head wounds was also treated, a chip inserted (00-065D-B493) and physical measurements taken. The cage was cleaned.

Cleaning the wound on the head.



7. 8 February 2005

Place: Nashik, DCF (E. Nashik residence), Nashik Forest Division.

A male leopard who fell into a well and was trapped in Kalvan Range on 17th December 2004 was chipped prior to release and his physical measurements were taken.. His chip number is 00-0658-E952. The cage was cleaned.



8. 8 February 2005

Place: Sugaon Nursery, Akola, Ahmednagar Division.

Leopardess trapped in Sugaon Khurd on 31 October 2004 was chipped and physical measurements taken. The number is 00-065D-A0A9. Better hygiene and feeding practices were recommended and the cage was cleaned.



9. 22 February 2005

Place: Nimbala Nursery, Sangamner, Ahmednagar Forest Division.

The female leopard was trapped in the outskirts of the Sangamner town in a wheat field. Her three very young cubs were found during the day of 11th February 2005 in the field and they were placed in the bait cage and she was trapped the same evening. A very large female. Chip number 00-0658-DDC2 was inserted.



10. 22nd February 2005

Place: Pandavlini Forest Park, Nashik.

A female leopard trapped in Sinnar was treated. She had wounds in many parts of her body (face, flanks) and was severely troubled by flies that were coming to the wounds. On examining her closely she was found to have none of her canines, and had severely damaged her claws. She was trapped following an attack on a little girl and a man. She recovered and was photographed a month later (*inset*).



11. 27th March 2005

Place: Nimbala Nursery, Sangamner, Ahmednagar Forest Division.

Two females (00-0658-BE28, 00-0658-C53A) and one male leopard (00-0658-DD78) were chipped. One of the females had puncture wounds on her elbow and forehead (which had maggot eggs). These wounds were cleaned and treatment given.





12. 28th March 2005

Place: Vaitarna Nursery, Igatpuri.

The male leopard was trapped in a sugarcane field in Nandur Shingote, Sinnar on 18th Mar 05. He had maggotted wounds on his forehead and an elbow. These were cleaned, maggots removed (*shown in picture*) and treatment was given. Chip 00-065D-CA37 was inserted. Recommendations were provided for better post capture management of leopards at this facility.



13. 28th March 2005

Place: Aurangabad Zoo

A leopard was trapped in a well in Osmanabad in the third week of January 2005. Since this area had never reported any leopards we thought it was likely he might be translocated individual trying to home back to his site of capture. We went to check if he had any chip.



14. 17th May 2005.

Place: Residence of the DCF – East Nashik, Nashik.

A leopard trapped in Kalvan range of East Nashik Division was chipped with number 00-065D-824F.



15. 9th June 2005

Place: Pandavlini Forest Nursery, Nashik.

Male trapped at Wanjarwadi village, W. Nashik, 00-065D-8C36



16. 29th June 2005

Place: Nimbala Forest Nursery, Sangamner, Ahmednagar District.

Male trapped at Kopargaon Range, Nagar. 00-065D-9457



17. 26th July 2005

Place: Nimbala Forest Nursery, Sangamner, Ahmednagar District.

Hyaena female found at the side of road near Chandanapuri Ghats, Sangamner. Chip 00-065D-C494 was inserted. She was released at the site of capture after recovery.



18. 22nd August 2005

Place: Range Forest Office (WL) Kolhapur.

Two leopard skins were found. One was found in a village near Radhanagari WLS, Kolhapur and the other in Kolhapur. We checked for chips in the skins of the animals since chipped leopards have been released in that area in the past. However, no chips were recorded in the skins, both of which appeared to be of young animals given the size and the dark coloration.



19. 23rd August 2005

Place: Bhimashankar Wildlife Sanctuary, Pune District.

A gaur has made a re-appearance in these forests after a gap of 12 years. The previous individual which was seen in the area died after falling off a cliff. We have recommended to the Department that the animal be radio-collared and monitored. The animal is seen to feed on the rice fields during the night.



20. 26th September 2005

Place: Nimbala Forest Nursery, Sangamner, Ahmednagar District.

Female trapped at Nimaj, AFD, following livestock attacks in the area. 00-065D-7414



21. 26th September 2005

Place: Nimbala Forest Nursery, Sangamner, Ahmednagar District.

Female trapped after having fallen into a well at Kanoli village (AFD).
00-0658-C032



Appendix 2

A copy of the report we provide at the site of each visit.

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To: DCF - Ahmednagar,
26 July 05

Re: Treatment of a lynx caught at Chandanapuri (Post)
on 22 July 05.

Chip #: 00-0658-C494
Age: adult
Sex: Female
Weight: 31 kg
→ Most probably hit by a vehicle. lacerated above
right eye.
- by doctor; 15 LAFENILLIN / 10% CATICAL / INOCANANT PRESSING

Recommendations: 1) DO NOT TREAT THE ANIMAL FOR NEXT WEEK.
NO PHYSICAL RESTRAINT AT ANY COST.

2) THE SAID ANIMAL WAS CAUGHT WITH COLES WITHOUT ANY
CHEMICAL RESTRAINT. THIS LEADS TO EXCESSIVE STRESS
AND POSSIBLY CAPTURED MYOARTH.

3) LEAVE THIS ANIMAL ALONE ONE WEEK NEAR THE
SITE WHERE IT WAS FOUND.

SUPPORTED BY

With regards,
S. K. Kelkar

Wildlife Trust of India

Signature

Appendix 3

A copy of the physical examination sheet

PHYSICAL EXAMINATION WORKSHEET

Priority to be given to treatment of life threatening conditions like shock, bleeding wounds; otherwise a systematic physical examination should be carried out before initiating treatment.

Date 8 Feb 05 Species Panthera pardus
Location captured/rescued Sugam khurd; cage in cage near river Pravara
Sex Female
Microchip ID 00-0650-1029 Location of chip base of tail
Weight (kg) 32
Body condition (1=good/2=poor) 2
Dehydration status -

adult
but not delivered
yet

Skin
Wounds/cuts/abrasions/swollen lymph nodes - N.A.D.
Parasites not detected

Eyes
discharge }
conjunctiva } NO ABNORMALITY DETECTED
pupils }
lensons }

Ears
discharge } N. A. D.
foreign body }
parasites }

Nasal area
discharge } N. A. D.
mouth CRT sec }
lesions }
gums }
teeth (plaque/coloration/wear and tear/broken) no broken teeth.

Musculoskeletal system
swelling } N. A. D.
fracture/dislocation }

Cardiopulmonary system
Heart rate/min (Auscultate left side of the chest between 3rd and 5th intercostal space) 60-80 per minute.

Respiratory rate/min
depth } 12 - 24 / min.
regularity }

Urogenital system
N. A. D.

References

Athreya, V.R., Thakur, S.S., Chaudhuri, S. & A.V. Belsare. 2004. A study of the man-leopard conflict in the Junnar Forest Division, Pune District, Maharashtra. Submitted to the Office of the Chief Wildlife Warden, Nagpur. Maharashtra Forest Department and the Wildlife Protection Society of India, New Delhi. ([http://www.ncra.tifr.res.in/~rathreya/JunnarLeopards/.](http://www.ncra.tifr.res.in/~rathreya/JunnarLeopards/))

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