No. 15-37/2012-NTCA
Government of India
Ministry of Environment, Forests & Climate Change
National Tiger Conservation Authority
****

1st Floor, NBCC Place,
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New Delhi-110003
Tele: 011-24362445
Email: aig3-ntca@nic.in
Dated: 4th March, 2015

To

1. The PCCF/HoFF(s)
   Tiger Range States.

2. The Chief Wildlife Warden(s)
   Tiger Range States.

Sub: Standard Operating Procedure (SOP) for active management towards rehabilitation of tigers from source areas at the landscape level – reg.

Sir,

Advisories have been issued by Project Tiger/ National Tiger Conservation Authority from time to time, to address the issue of livestock depredation. Keeping the situation in view, a "SOP to deal with tiger depredation on livestock" has been developed to meet the present challenges.

In this context, I am directed to forward a copy of the same duly approved by the competent authority, for information and necessary action.

The SOP may please be translated in vernacular and widely circulated amongst the field staff for guidance.

Encl: As above

Yours faithfully,

(Dr. Vabhav C. Mathur)
Assistant Inspector General of Forests (NTCA)

Copy to:
1. PS to MEF & CC.
2. PPS to Secretary (E&F).
3. PPS to DGF & SS, MoEF&CC.
4. PPS to ADG (WL), MoEF&CC.
5. The Addl. Director, Wildlife Crime Control Bureau, R.K.Puram, New Delhi
6. The IGF(s), Regional Office, NTCA, Nagpur/Bengaluru/Guwahati.
7. The Field Director (s), All Tiger Reserves.

H//User,AIG (VM) doc. NTCA

STANDARD OPERATING PROCEDURE
TO DEAL WITH
TIGER DEPREDATION ON
LIVESTOCK

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

GOVERNMENT OF INDIA

NATIONAL TIGER CONSERVATION AUTHORITY

STANDARD OPERATING PROCEDURE
TO DEAL WITH TIGER DEPREDATION ON LIVESTOCK

1. **Title:** Standard Operating Procedure to deal with tiger depredation on livestock

2. **Subject:** Dealing with situations arising due to tiger depredation on livestock

3. **Reference:** SOP of National Tiger Conservation Authority / Project Tiger on emergencies arising out of straying tigers in human dominated landscapes

4. **Purpose:** To ensure appropriate action to deal with livestock carcasses being fed upon by tigers, to avoid undue interference with the natural process prevailing in the habitat, while avoiding their casualty / injury, besides safeguarding general public and field staff.

5. **Short summary:** This Standard Operating Procedure (SOP) provides the basic, action and precautions required at the field level (tiger reserve or elsewhere) for dealing with livestock carcasses being fed upon by tigers

6. **Scope:** The SOP applies to all tiger reserves and field formations with tiger presence.

7. **Responsibilities:** The Field Director would be responsible in the case of tiger reserves. For protected areas (National Park / Wildlife Sanctuary), the concerned protected area manager would be responsible. In the case of other areas (revenue land/conservation reserve/community reserve/village/township) the Wildlife Warden, as per the Wildlife (Protection) Act, 1972, or Divisional Forest Officer/ Deputy Conservator of Forests (under whose jurisdiction the area falls), would be responsible. The overall responsibility at the State level would rest with the Chief Wildlife Warden of the concerned State.

8. **Causes / reasons / circumstances leading to tigers feeding on livestock**

   a. Humans let loose their cattle in forest areas for grazing
   b. People tend to encroach upon forest land exposing their livestock to predation
   c. Tigers disperse into human dominated landscapes when the carrying capacity of a source area is achieved, forcing them to prey on livestock
   d. Young, old and weak tigers are pushed to the periphery of optimum habitats by tigers which have greater vigour

e. Tigers may become habituated to feeding on livestock due to the principles of optimal foraging

f. In case corridor connectivity exists, tigers disperse out to other habitats to establish their territory in a meta population.

9. Suggested field actions to deal with tiger depredation on livestock

a) All livestock kills should be reported to the nearest forest management unit for which sensitization campaigns need to be carried out on a regular basis. The concerned forest unit should also develop an intelligence based informer network to detect such kills. Forest units adjoining tiger occupied areas also need to be sensitized to the issue of livestock kills and report these immediately. A mechanism for incentives to the villagers/informers/charwahas for cattle kill may also be developed.

b) A committee with the following members may be constituted to oversee the kill and its surrounds;

   a. A representative of the local Panchayat
   b. Local NGO representative, nominated by the FD/DCF under whose jurisdiction the area falls
   c. A veterinarian
   d. Deputy Director/Protected Area Manager/DFO I/C –Chairman

   Non-official members need to be incentivized for adequate co-operation, for which a mechanism needs to be devised in coordination with the District administration and/or nearest Tiger Reserve

c) In case of livestock depredation by tiger/leopard, the carcass should not be removed from the site but should be allowed to be eaten in full by the carnivore to prevent recurrence of such depredation in the area.

d) Prompt payment of compensation should be done to the affected people vis-à-vis the citizen's charter, for which a mechanism needs to be devised in coordination with the concerned District administration and/or nearest Tiger Reserve

e) Ensure unobtrusive guarding/monitoring of the kill to allow feeding of the carcass (if not close to a human settlement) besides safeguarding from poisoning from villagers (for revenge killing). A special team may be formed for this purpose in consultation with the above committee, which too needs to be incentivized.

f) The first 24 hours of observation after detection of the carcass are critical in context of the tiger returning to the kill and finishing feeding. If however, this does not happen, the livestock remains/rejects need to be incinerated completely by burning to prevent spread of infectious diseases to humans and other animals. The area also needs to be sanitized with chemicals/flaming to destroy any disease causing spores.

g) Set up camera traps near kill site to confirm / establish the ID of the animal.
h) Establish identity of the tiger by comparing camera trap photographs with National Repository of Camera Trap Photographs of Tigers (NRCTPT) / Reserve level photo database and find out the source area of the animal.
i) Collect recent cattle / livestock depredation or human injury /fatal encounter data, if any, in the area. If it is an area historically prone to such incidences, detailed research work has to be carried out in order to assess the reasons for the frequent tiger emergencies in the area
j) Create 'pressure impression pads (PIPs)' in the area to ascertain the daily movement of the animal, while plotting the same on a map (4"=1 mile scale or 1:50,000 scale).
k) If close to human habitation, proactively involve District Collector / DM and SSP / SP of the area to maintain law and order in the area, besides avoiding crowding by local mobs. Acquaint them with human-tiger conflict issues and guidelines of the NTCA to deal with the situation. If the situation demands, the district authorities need to ensure law and order by imposing section 144 of the Cr.Pc. This is essential to avoid agitation/excited local people surrounding the animal spot which hampers movement of the animal back to the wild as well as capture operation (if required), leading to serious injuries on people and staff.
l) Take help of the district level officials to alert the villages in the vicinity of the area having the spatial presence of the tiger. Local account of tiger presence can also be disseminated by *"munadi"* or other prevalent local systems to avoid visiting in such areas.
m) In case of tiger/leopard showing disability due to injury/old age or display in aberrant behaviour by resorting to livestock depredation in a recurring manner, such animals should be dealt with as per the following SOPs issued by this Authority:
    a. SOP to deal with emergency arising due to straying of tigers in human dominated landscapes
    b. SOP deal with orphaned/abandoned tiger cubs and old / injured tigers in the wild.

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No. 15-37/2012-NTCA
Government of India
Ministry of Environment, Forests & Climate Change
National Tiger Conservation Authority
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1st Floor, NBCC Place,
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New Delhi-110003
Tele: 011-24362445
Email: aig3-ntca@nic.in
Dated: 3rd March, 2015

To

1. The PCCF/HoFF(s)
   Tiger Range States.

2. The Chief Wildlife Warden(s)
   Tiger Range States.

Sub: Standard Operating Procedure (SOP) for active management towards rehabilitation of tigers from source areas at the landscape level - reg.

Sir,

Advisories have been issued by Project Tiger/ National Tiger Conservation Authroity from time to time, on different issues relating to tiger mortality, post mortem, reporting etc. With increase in tiger numbers in India, there will be several areas where dispensing Tigers will move through human dominated landscapes and at times result in human tiger conflict. In many situations, such dispensing tigers will need to be captured and released back in the wild. It is important to relocate such tiger to areas of low tiger density (or no tigers but form historical range of tigers) which have good habitat and prey.

Keeping the situation in view, a SOP for "Active management towards rehabilitation of tigers from source areas at the landscape level" has been developed to meet the present challenges.

In this context, I am directed to forward a copy of the said Standard Operating Procedure (SOP) duly approved by the competent authority, for information and necessary action.

The SOP may please be translated in vernacular and widely circulated amongst the field staff for guidance.

Yours faithfully,

(Dr. Vabhav C. Mathur)
Assistant Inspector General of Forests (NTCA)

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Copy to:
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7. The Field Director (s), All Tiger Reserves.

H//User,AIG (VM) doc. NTCA

Discussed. PA circulate among all circle officers. DD (WL) AT may be requested to translate and submit to the PA for circulation

STANDARD OPERATING PROCEDURE FOR ACTIVE MANAGEMENT TOWARDS REHABILITATION OF TIGERS FROM SOURCE AREAS AT THE LANDSCAPE LEVEL

MINISTRY OF ENVIRONMENT, FOREST , AND CLIMATE CHANGE

GOVERNMENT OF INDIA

NATIONAL TIGER CONSERVATION AUTHORITY

STANDARD OPERATING PROCEDURE FOR ACTIVE MANAGEMENT TOWARDS REHABILITATION OF TIGERS FROM SOURCE AREAS AT THE LANDSCAPE LEVEL

1. **Title:** Standard Operating Procedure for active management towards rehabilitation of tigers from source areas at the landscape level.

2. **Subject:** Active management towards rehabilitation of tigers from source areas at the landscape level.

3. **Reference:** SOP of National Tiger Conservation Authority / Project Tiger to deal with straying tigers in human dominated landscapes and related advisories on the subject.

4. **Purpose:** With the increase in tiger numbers in India, there will be several areas where dispersing tigers will move through human dominated landscapes and at times result in human-tiger conflict. Conservation in such areas will now be dependent on quick, timely and appropriate mitigation of these conflict situations. Often tigers involved in conflict or tigers that come into human dominated landscapes may need to be captured. If such tigers are not man-eaters then there is a possibility to release them back into the wild. However, capturing tigers and releasing them to the source of their origin would not always resolve the problem. Often, the main reason for the dispersal of tigers is the high density of the source population. It is important to relocate such tigers to areas of low tiger density (or no tigers but have recorded tiger presence in the historical range), which have good habitat and prey populations. However, care needs to be taken to ensure that such relocations are done within population clusters that share a recent common gene pool. Based on the current genetic knowledge and existing corridor connectivity, we herein identify such population clusters within each landscape and suggest areas that are suitable to relocate surplus tigers.

5. **Short summary:** This Standard Operating Procedure (SOP) provides the basic criteria for Active management towards rehabilitation of tigers from source areas at the landscape level.

6. **Scope:** The SOP applies to all tiger landscapes / tiger reserves and tiger bearing forests.

7. **Responsibilities:** The Field Director would be responsible in the case of tiger reserves. For protected areas (National Park / Wildlife Sanctuary), the concerned protected area manager would be responsible. In the case of other areas (revenue land/conservation reserve/community reserve/village/township) the Wildlife Warden, as per the Wildlife (Protection) Act, 1972, or Divisional Forest Officer/ Deputy Conservator of Forests (under whose jurisdiction the area falls), would be responsible. The overall responsibility at the State level would rest with the Chief Wildlife Warden of the concerned State.

9. Suggested field actions to deal with active management towards rehabilitation of tigers from source areas at the landscape level:

1 Shivalik Hills and Gangetic Plains Landscape

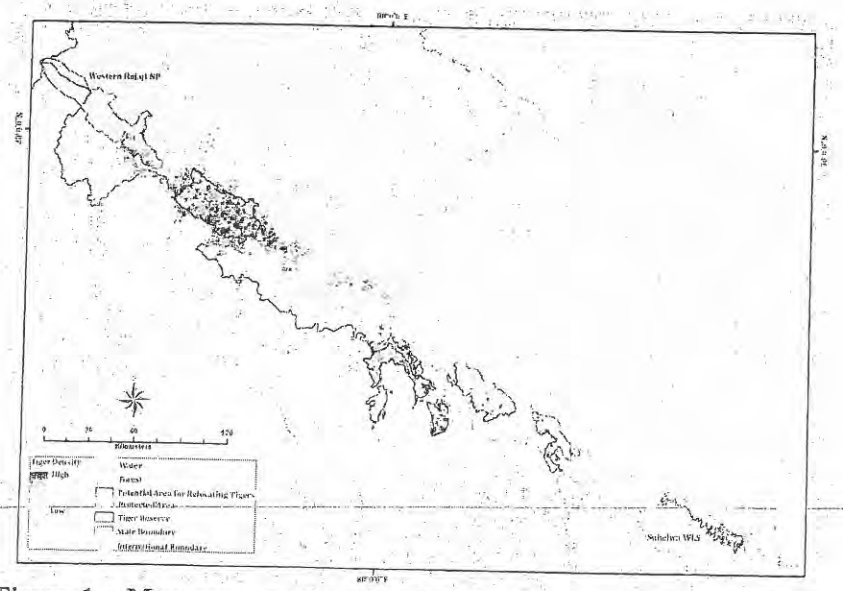


Figure 1 : Map representing tiger bearing areas and their tiger densities in the Shivalik hills and Gangetic plains landscape (2013-14). The highlighted areas (in red) represent potential areas for relocating tigers within this landscape

This landscape has high density source tiger populations like Corbett TR and other sources like Dudhwa NP, Kishenpur WLS, Katerniaghat WLS and Pilibhit TR. Tiger presence is now almost continuous from the Ganges eastwards into Nepal. The only low-density tiger habitat with appropriate prey density to support additional tigers is the western part of Rajaji NP, which includes the ranges of Dholkhand (East & West), Kansrao, Haridwar, Motichur, Ramgarh, and Chillawali. If tigers are relocated here, they are likely to breed and eventually spread into the Shivalik Forest division of Uttar Pradesh, and into Kalesar National Park of Haryana. The second option are the forests of Suhelwa WLS, which currently require restorative inputs, so as to boost prey populations, and protection measures to ensure that introduced tigers are not poached.

Valmiki TR maintains good connectivity with the Chitwan NP in Nepal. Tigers dispersing from Valmiki TR should be put back into Valmiki as they have a large landscape to disperse into on the Nepal side. Parts of Chitwan NP and Parsa wildlife reserve have low tiger density and can potentially accommodate dispersers from Valmiki TR. Valmiki tigers could also be translocated to Sohagibarwa WLS (after ensuring adequate protection measures).

2 Central Indian landscape

2.1 CI-Cluster I: Sariska TR, Ranthambore NP, Kailadevi WLS, Mukundara hills TR, Palpur-Kuno WLS, Madhav NP

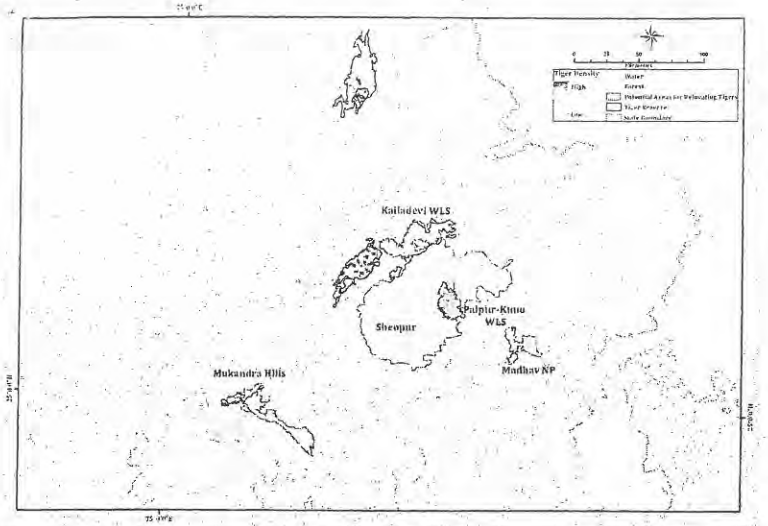


Figure 2: Map representing tiger bearing areas and their tiger densities in CG-Cluster I (2013-14). The highlighted areas (in red) represent potential areas for relocating tigers within this landscape

For the northwestern cluster of the central Indian landscape, Ranthambore NP is the only high-density source population. It is well connected to low tiger density areas like Kailadevi WLS, Palpur-Kuno WLS and Mukundara hills TR, which are potential sites for moving dispersing tigers from Ranthambore NP. If tigers are relocated here, then this will facilitate the persistence of a healthy metapopulation in the landscape.

2.2 CI-Cluster II: Bandhavgarh TR, Sanjay Dubri TR, Guru Ghasidas NP, Achanakmar TR, Kanha TR, Pench TR, Melghat TR, Satpura TR, Tadoba-Andhari TR, Nawegaon-Nagzira TR, Bor TR, Kawal TR, Indravati TR, Udanti-Sitanadi TR, Palamau TR, Nauradehi WLS, Panna TR

This cluster has several high-density source populations like Kanha TR, Pench TR, Tadoba-Andhari TR and Bandhavgarh TR. However, the connectivity in the interceding areas is very poor. The dispersing tigers from these populations could be moved into low tiger density areas of Sanjay Dubri TR, Guru Ghasidas NP, Achanakmar TR, Udanti-Sitanadi TR, Kawal TR, Indravati TR, Palamau TR and Nauradehi WLS. However, appropriate protection measures and prey base restoration needs to be addressed at these sites. Other additional sites where tigers from this central Indian cluster could be moved, are to the forests of Khandwa, Dewas, Harda, Betul and Burhanpur.

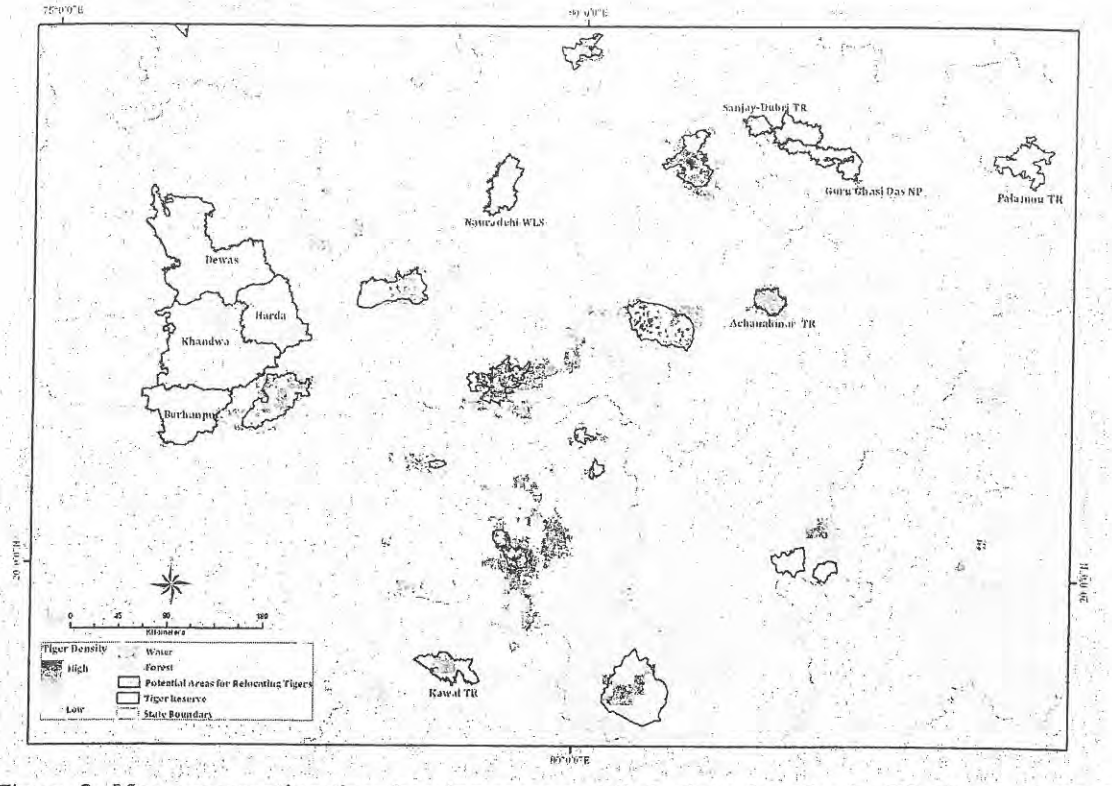


Figure 3: Map representing tiger bearing areas and their tiger densities in CG-Cluster II (2013-14). The highlighted areas (in red) represent potential areas for relocating tigers within this landscape

2.3 CG-Cluster III: Similipal TR and Satkosia TR

Similipal and Satkosia TRs represent a lineage that produces melanistic tigers and are likely to be of a unique gene pool in this landscape. We therefore, need to maintain the genetic integrity of this landscape by refraining from relocating tigers from other areas of central India into this cluster. There is a vast area of suitable habitat in these areas, which currently harbours very low density of tigers. Any dispersing tiger out of these areas needs to be put back into Similipal and Satkosia TRs. However, the prey base, habitat and protection measures need to be improved and the reasons for the movement of the tigers need to be inspected. It may be relevant to commence a conservation breeding program for tigers from this cluster since their numbers are rapidly declining and this unique phenotype may become extinct in the future.

2.4 EG-Cluster I: Nagarjunsagar-Srisailam TR, Gundla Bramheshwaram WLS

The only source population in this cluster is the Nagarjunsagar-Srisailam TR including Gundla Brahmeswaram WLS, while there are several protected areas with suitable prey base and habitat such as Sri Lankamalleswara WLS, Sri Penusila Narasimha WLS and Sri Venkateswara NP in the Eastern Ghats, which currently do not have any tiger population. Forest corridors connect Srisailam forests with those of Siddavatam and Sri Venkateswara NP, and by relocating tigers into Sri Venkateswara NP, it will help expand tiger occupied areas and create new source populations. Tigers from the above forests are likely to disperse and occupy Siddavatam, Kurnool, Prakasham and Cuddappah forests as well. One major concern that needs to be addressed/studied in these areas is the presence of appropriate prey base and relevant protection.

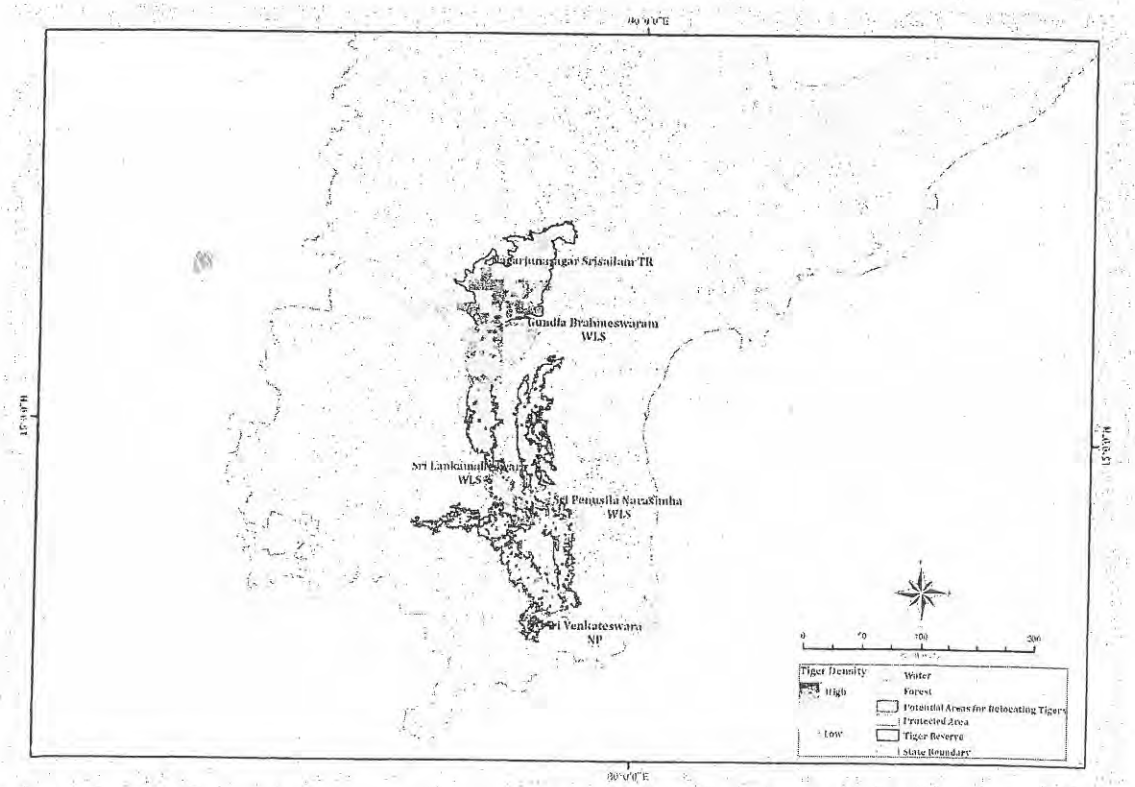


Figure 4: Map representing tiger bearing areas and their tiger densities in EG-Cluster I (2013-14). The highlighted areas (in red) represent potential areas for relocating tigers within this landscape

3 Western Ghats Landscape complex

3.1 WG-Cluster I: Sahyadri TR, Protected areas of Goa (Mhadei WLS, Bhagawan Mahavir (Mollem) NP, Netravali WLS, Cotigaon WLS), Dandeli-Anshi TR, Bhadra TR, Bandipur TR, Nagarhole TR, Biligiri Ranganatha Temple TR (BRT), Sathyamangalam TR and Mudumalai TR

The Western Ghats landscape has several high-density source populations like Bandipur TR, Nagarhole TR and BRT TR and the populations here are likely to disperse out in the near future. Repopulating these dispersing tigers to intervening low tiger density areas like Bhadra TR and Dandeli-Anshi TR will connect these populations to other low-density areas like Sahyadri and Goa where ample tiger habitat exists but tigers are at low density. This will also create a contiguous tiger population with ample connectivity, which is important for long-term survival of these populations. Followed by Bhadra TR and Dandeli-Anshi TR, the protected areas of Goa and Sahyadri TR form a viable option in this cluster to move dispersing tigers.

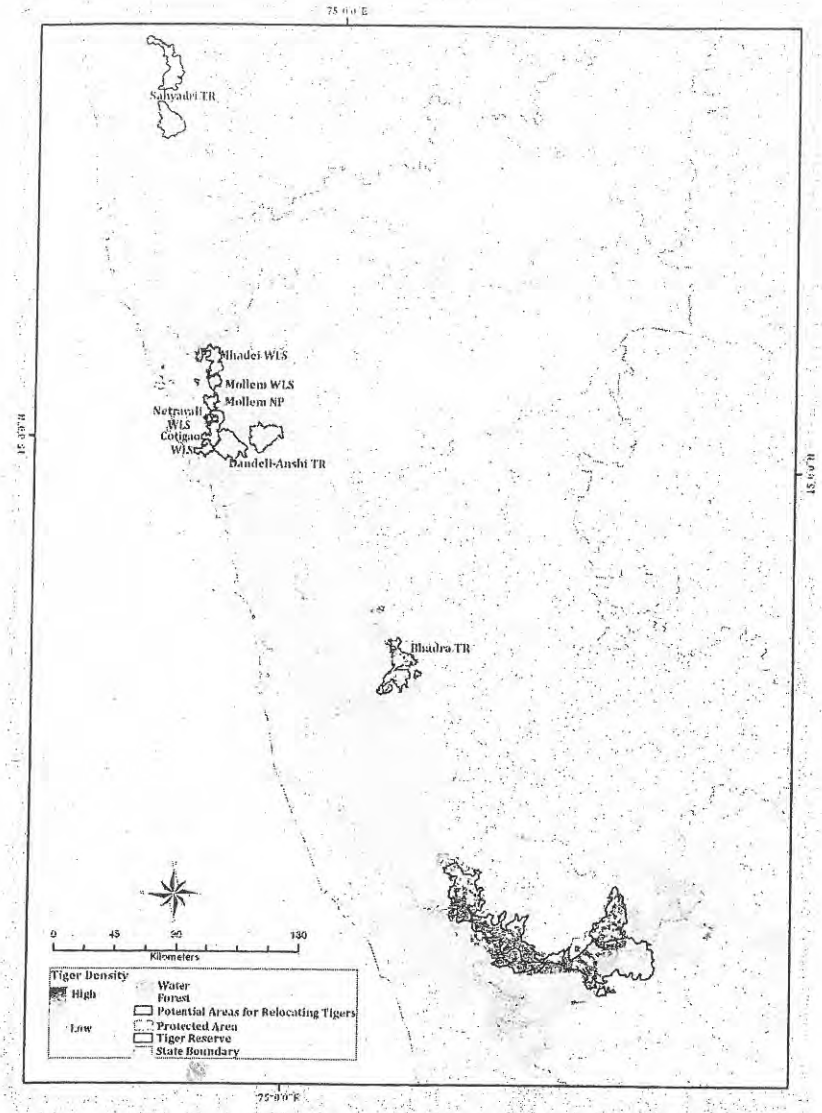
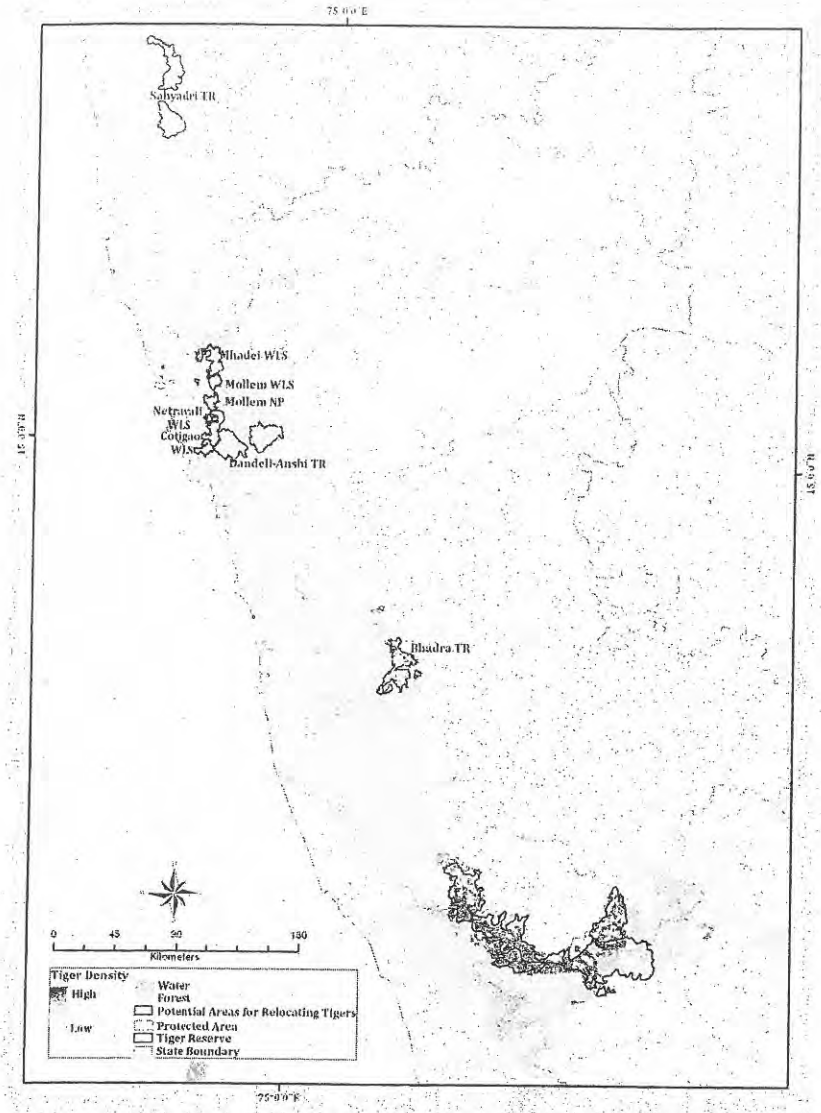


Figure 5: Map representing tiger bearing areas and their tiger densities in WG-Cluster I (2013-14). The highlighted areas (in red) represent potential areas for relocating tigers within this landscape

3.2 WG-Cluster II: Parambikulam TR, Anamalai TR, Periyar TR, Kalakad-Mundanthurai TR (KMTR)

The second cluster of the Western Ghats landscape complex currently has low density of tigers, and any dispersing tigers in this cluster can be put back into their respective tiger reserves and the reason for their movement into human dominated landscapes needs to be examined.



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The second cluster of the Western Ghats landscape complex currently has low density of tigers, and any dispersing tigers in this cluster can be put back into their respective tiger reserves and the reason for their movement into human dominated landscapes needs to be examined.

4 Northeast hills and Brahmaputra flood plains

4.1 NE-Cluster I: Kaziranga TR, Manas TR, Orang NP, Buxa TR, Nameri TR, Pakke TR, Dampa TR, Karbi Anglong hills, Gorumara NP and Jaldapara WLS, Intaki NP.

The source populations that currently produce dispersing tigers within this cluster are Kaziranga and Orang TRs. Surplus wild tigers could be relocated into Manas TR, Buxa TR, Gorumara NP, Jaldapara WLS, Dampa TR, and the Karbi Anglong Hills. However, these areas need to ensure protection for the introduced tigers.

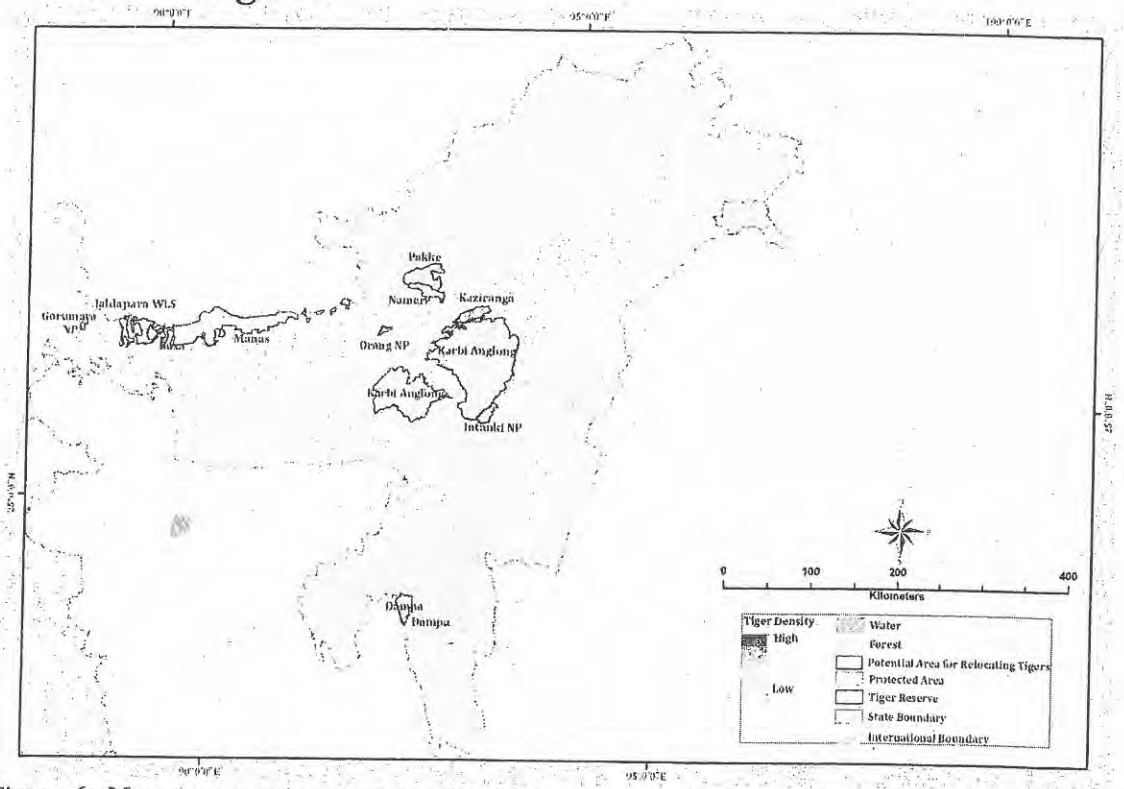

Figure 6: Map representing tiger bearing areas and their tiger densities in NE-Cluster I (2013-14). The highlighted areas (in red) represent potential areas for relocating tigers within this landscape

4.2 NE-Cluster II: Namdapha TR and Dibang WLS

Tiger populations from this extremely eastern population cluster are likely to have their genetic affinity with tigers from Myanmar. Tigers from this cluster should be moved within this region only. Since this is a low tiger density area, conflicts with conspecifics are unlikely to occur.

preferably be done by soft release protocol. Hard release should only be considered when logistic constraints do not permit soft release. The release site should have good habitat, prey density and protection measures. Human density at the release site should be low and composed of communities that have experience of living with large carnivores.

NB:-

1. The identification of dispersing tiger and the procedure for translocation / drug dosage / transportation would be in accordance with guidelines / SOP issued earlier from NTCA / Project Tiger.

2. Adequacy of field protection / prey base should be ascertained at the new site prior to translocation.

3. 'Soft' release of the tiger should be preferred as a precautionary measure, which would necessitate the creation of an in-situ enclosure with natural prey at the release site.

4. The translocated tiger should invariably radio collared to facilitate close monitoring after release.

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