



21ST CENTURY TIGER
giving wild tigers a future

WILDLIFE CRIME AND DETECTION IN BERBAK

**Maintaining and Promoting Wildlife Crime Action
Network in Berbak National Park**

Final Report to 21st Century Tiger

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A. Executive Summary

The Wildlife Conflict and Crime Response Team (WCCRT), formerly known as the “Unit Penanggulangan Konflik dan Kejahatan Lingkungan” (UPKKL), has been designed to deal with tiger poaching, illegal trading and other human-wildlife conflict in the Berbak Ecosystem, Province of Jambi, Sumatra. It is a multi-stakeholder unit that has now consolidated its position within Jambi by establishing a stronger legal basis, under a Memorandum of Understanding that now exists between ZSL Indonesia and the Natural Resources Conservation Agency (BKSDA) Jambi. This MoU was further supported by the issue of a Decree from the Head of BKSDA to the various Department heads of each team member. This has cemented the role of the team and promoted joined-up management of the team. This will further elevate the position of the WCCRT politically with other groups involved in dealing with human-wildlife conflict and environmental crime issues in Jambi Province.

Between 2011 and 2012, the WCCRT was informed of, monitored and responded to 13 cases of human wildlife conflict in Jambi Province, 8 of which (61 percent) were related to tiger-human conflict, an increase on last year which may be related to the effects of the summer forest fires on prey density, resulting in the tigers being forced to travel further to hunt.

It is clear that if threats to the tiger population in and around Berbak National Park such as poaching and human conflict do not continue to be addressed , then long term plans to protect and conserve the national park through REDD financing could potentially be for a forest empty of tigers. Tiger-human conflict that occurred this year has led to the death of 3 tigers by high-voltage electric fences set up to protect community-owned plantations and 1 death from an incidental snaring. As a result, the WCCRT have begun to work on a policy level to try to design new laws to prevent the use of these fences, working with the farmers to develop a program of tiger-friendly farming practices and land use management to prevent further loss of the tiger from its habitat.

In this reporting period, the WCCRT has been informed of and dealt with 9 cases of wildlife-human conflict involving Sumatran tigers. They have demonstrated their abilities as a rapid response team, investigating the causes of these conflicts and taking steps to mitigate and resolve any further human-wildlife conflicts.

B. Current Status of Work

1. Strengthening Support for the Wildlife Conflict and Crime Response Team

During the 'Conflict Management Unit and Environmental Crime (UPPKL)' first year of operation in Berbak Ecosystem in 2010, it worked as an informal multi-stakeholder-based team with each of the members having individual legal status to conduct wildlife conflict and crime activities. In order to strengthen the legal aspects of the Wildlife Conflict and Crime Response Team (WCCRT), on the 23 August 2011 a Memorandum of Understanding was signed between the Head of BKSDA (Natural Resources Conservation Agency) for Jambi Province, Ir. Tri Siswo Rahardjo M.Si and Dolly Priatna M. Si representing the Zoological Society of London, Indonesia Programme regarding the implementation of the Wildlife Conflict and Crime Response Team (WCCRT). This legal recognition of the WCCRT as an entity is essential to promoting the smooth operation of the team in the field and to increase the support for team members in undertaking their roles in the WCCRT. This MoU also strengthens the position of WCCRT with other parties that deal with the management of wildlife conflicts.

The Memorandum of Understanding states the scope of cooperation between the two parties (BKSDA Jambi and ZSL) in the implementation of Wildlife Conflict and Crime Response Team, including the following aspects:

- a) Implementation of WCCRT operational activities carried out in the Berbak Ecosystem and Jambi Province;
- b) Developing a system to address wildlife conflicts and other environmental crimes, especially in the Berbak Ecosystem;
- c) The design and implementation of a pilot project for creating a "Conservation-friendly Electric Fencing System" to create a way in which farmers can protect their crops from raiding pigs but at the same time minimise potential risk to wildlife, especially the Sumatran tiger;
- d) To address the capacity building of all members who joined the WCCRT through training related to wildlife conflict field operations;
- e) Development of a MIST (*Management Information System for Tigers*) database management system to process and analyse data resulting from patrol work.

At the national policy level, this Memorandum of Understanding is legally supported by Ministry of Forestry Regulation No. 48/ 2008 on Guidelines for Wildlife Conflict Management.

This MoU was followed up in early October 2011 by a Decree from the Head of the BKSDA Jambi concerning 'The Assignment of Personnel to the Wildlife Conflict and Crime Response Team'

The authority, responsibilities and duties of the WCCRT under the Decree are as follows:

- a) To fall under the overall responsibility of the Head of the Natural Resources Conservation Agency Jambi Province;
- b) To coordinate the cooperation of wildlife conflict management between the WCCRT and relevant institutions;
- c) Provisioning the WCCRT with training related to wildlife conflict and investigation capacities, particularly the Sumatran tiger;

- d) Preparing Standard Operating Procedures (SOP) documents for tiger handling operations in human-tiger conflict situations, which include inspection and risk assessment of human-tiger conflict, flow and analysis of information, victim compensation, legal process, procedures for handling conflict and wildlife conflict handling equipment and supplies;
- e) To manage a database of environmental crime and wildlife conflict handling, particularly the Sumatran tiger, using Data Base System - MIST (Management Information System for Tigers);
- f) To respond to and follow up rapidly on wildlife conflict in the Berbak Ecosystem and surrounding areas;
- g) To create and strengthen the function of local-level intelligence information networks throughout the Berbak ecosystem;
- h) To promote and implement a pilot project for ' low voltage and wildlife conservation-human friendly electric fence' to reduce or stop the wildlife conflict in agricultural areas, particularly for the Sumatran tiger;
- i) To undertake regular forest patrolling in areas vulnerable to wildlife conflicts and potential threats
- j) To develop campaign materials on the existence and work results of the WCCRT to disseminate to the general public;
- k) To investigate wildlife crime, particularly involving the Sumatran tiger;
- l) To coordinate with the relevant parties in response to information about environmental crime that is received during the period of the project;
- m) To coordinate with other organisations dealing with wildlife conflict management operations.



Picture 1. WCCRT Team members: (clockwise from left sitting) Sartono, Heva Edison, Havis Badaruddin, Mahfuddin and Ade Irawan (members); Nurazman (lead).

2. WCCRT Response to Wildlife Conflicts

From February 2011 to the second reporting period, the WCCRT has handled nine cases of wildlife conflict. The activities involved in handling these cases are described below chronologically.

February 2011

On 5th February 2011, the WCCRT attended a case where human victims were/ preyed upon Sumatran tigers in the Sungai Gelam Village Muaro Jambi District. The village is bordered by a single Acacia Timber Forest Plantation with several other companies working in Bayung Lincir, South Sumatra Province.

The WCCRT Team found that on Wednesday February 2nd 2011 a 52-year-old man (a forestry worker) was killed by a Sumatran tiger. Eye witnesses who saw the incident said that the tiger appeared, frightening the victim so he ran away from the tiger. The tiger pursued the victim and pounced on him killing him. Once dead the victim was mauled by the tiger. The incident happened across the River Pering in a timber logging concession. Local residents said that people have regularly observed the presence of tigers here but few of these sightings were reported. In January 2011, at least three encounters occurred with an adult tiger and two juvenile tigers seen together, passing around the village and surrounding agricultural areas.

In response to this incident and the subsequent stories in the local press on 10th February, the WCCRT and BKSDA Jambi facilitated a wildlife conflict prevention event to the public in Jambi. The purpose of the event was to convey information about human wildlife conflict, highlighting to the wider community that this conflict was being addressed and to improve the reliability of information on how to deal with human wildlife conflict thus reducing sensationalist press stories. Participants who attended the event included journalists from the press and electronic media, international and local NGOs and local government.

The conclusions of the meeting and discussion forum were as follows:

1. The main cause of human wildlife conflict is the loss of natural habitat for the tiger and other wildlife species for foraging, shelter and mating. In Jambi Province, the key drivers of human wildlife conflicts are Illegal logging, forest fire, forest encroachment and forest area conversion to subsistence and commercial agriculture both legal and illegal.
2. Steps need to be taken to address proactively the destruction and deforestation of natural forest. Solutions proposed included construction of Wildlife Corridors to link forest areas through production landscape such as palm oil concessions, logging concessions and timber plantations; improved law enforcement; increased forest fire prevention and local community participation in forest and wildlife conservation.

On 22ND February 2011, the WCCRT received a report that a tiger had died in the Air Hitam Laut Village, Tanjung Jabung Timur District, on the east coast of Berbak National Park. The tiger death, which occurred on 16th February, was a direct result of the tiger being electrocuted by a high-voltage electric wire fence erected in the plantation area owned by local residents.

As with other villages in the area, Air Hitam Laut is heavily reliant on agriculture, including small scale palm oil and coconut plantation, so to protect their crops from pests such as wild

pigs a 1,500 watt high-voltage electrical wire fence was erected to deter or kill these pests. This form of deterrent is extremely dangerous, for both humans and wildlife.

Electrified fences are increasingly being used by farmers in the Sadu District to prevent attacks on their crops by pigs and other wildlife pests. The tiger that was killed was identified as an adolescent male, approximately 7-years-old and weighing 70 kg. Death was instantaneous from the electric shock received from the fence. This incident was the first of its kind and, due to the villagers in Air Hitam Laut being aware of the penalties relating to tiger deaths from previous work with ZSL, the farmer tried to dispose of the corpse. Other villagers informed the WCCRT hotline about what had happened.

On attending the scene the WCCRT found tiger bones scattered across the field showing evidence of predation on some of the tiger bones by lizards (Biawak). The main body of the tiger had been burnt and left exposed in the field. This resulted in members of the community collecting body parts from the remains, especially sections of the skin. Many of the tiger bones were not found by WCCRT, including the tiger’s head.

After conducting an in-depth investigation, the missing tiger body parts were collected from the village including the head of the tiger which was buried under the house of the farmer whose fence resulted in the tiger’s death.



Picture 3. The WCCRT collecting field evidence of a tiger killed by a high-voltage electric fence.

March 2011

On 28th March 2011, the WCCRT responded to a second human wildlife conflict again in the Air Hitam Laut Villlage, Sadu Sub district. A second juvenile male Sumatran tiger had been killed by a high-voltage electric fence in an agricultural area owned by local residents. As a result of the socialisation activities after the first killing, the WCCRT were immediately informed of the second incident. WCCRT personnel then removed the tiger to the Animal Laboratory in Jambi for an autopsy to confirm the cause of death. Laboratory results confirmed that the Sumatran tiger was killed by electrocution



Picture 2. Sumatran tiger killed by 1500 watt high-voltage electric fence in a community agricultural area.

Photos and evidence from the lab allowed ZSL’s Field Survey Coordinator and Tiger Officer to confirm that the dead tiger was a 4 year old male tiger, ‘King Arthur’. This young tiger was one of the first tigers to be captured by ZSL’s long term tiger monitoring camera traps in Berbak National Park in June 2010. Video footage also recorded this young male hunting.



Since the tragic loss of these two young tigers the WCCRT has met with local resident to discuss alternative methods of pest control to avoid similar incidents in the future. Local residents claimed that the use of high-voltage electric fence is the most cost effective and successful method and currently there is no alternative way to prevent pigs and other pests attacking their crops.

Although only in use for the last 12 months, high-voltage fence is rapidly being adopted by farmers in Air Hitam Laut Village and by others in nearby villages experiencing similar problems with wild pigs. High-voltage fences kill about 50 pigs/week. The meeting recorded a total of 13 farmers in Air Hitam Laut Village using these high-voltage electric fences.



Picture 4. The WCCRT found parts of a Sumatran tiger which had been killed by electric fence, including head, teeth, skin pieces, bones.

The WCCRT, Berbak National Park Office and local community representatives in the meeting agreed to investigate further and to promote implementation of new methods of preventing human-tiger conflict such as the installation of low-voltage and wildlife conservation and human friendly electric fence. This electric fence has a pulsed electrical charge and only shocks the pigs; it does not kill them. Therefore, if the wire comes into contact with wildlife or humans the contact will be unpleasant, but will not injure or cause fatalities for most wildlife. This method is quite effective, and less harmful to humans and wildlife.

These cases have clearly demonstrated the need for further community conservation awareness activities to socialise and implement a pilot project for ‘wildlife conservation friendly electrical fence’ and to address the issue of minimising the use of high-voltage fencing while at the same time reducing human-tiger conflict in community agricultural areas. Sadly, only a week after this meeting a local mother and daughter were walking in the fields and also received fatal injuries from coming into contact with these fences.

April and May 2011

As well as patrolling activities, the WCCRT responded to a report from a company on the presence of a tiger in their oil palm concession, adjacent to the Grand Forest Park in Mekar Sari Village, Kumpeh Ulu District. On 28th March 2011 a harvester saw a tiger running in the oil palm. On 29th March another female farm woman worker had a direct sighting of an adolescent tiger, when she was clearing in the oil palm plantation.



Picture 5. A community meeting in Air Hitam Laut Village to discuss how to resolve human-tiger conflicts

Tiger sightings were also reported in another concession between 30th April and 3rd May, in Puding Village, Muara Jambi Sub-district. Located only 4 km from Berbak National Park, the concession has been operating since 2004. The concession boundary meets a neighbouring concession, where ‘Salma’ an alleged conflict tiger and man killer was caught in 2009. Tiger pug marks are still regularly seen in this area.

As a result of this continued and high level of presence, the likelihood of tiger-human conflict is high so, in anticipation of this, the WCCRT recommended to the plantation

owners that an awareness campaign be started. This would socialise human-tiger conflict management to employees, increasing awareness and alerting employees on how to mitigate or respond to human-tiger conflicts.

The WCCRT concluded that it is highly likely that the tigers are coming from Berbak National Park, as the high rainfall and flooding in the swamp forest in the park may have resulted in reduced hunting capabilities for the tigers in the park. This lack of resource availability may have caused tigers to move towards the palm oil plantation, to forage on the drier land of the concession.

Another WCCRT conclusion was that facilitating the involvement of the private sector, as well as the local community in human-tiger conflict prevention is essential, since many conflicts occur close to plantations, mining concessions and agricultural land as well as close to human settlements.



Picture 6. Investigation of tiger movements in villages bordering the park.

June 2011

The WCCRT attended no incidents of wildlife conflict but undertook regular patrolling activities in the National Park.

July 2011

On 14th to 16th July 2011, the WCCRT conducted human-tiger conflict management socialisation with palm oil plantation workers from plantations located near conservation areas such as Berbak National Park and Tanjung Grand Forest Park. , Wildlife species are often seen in palm oil plantations, including tigers and sunbears. Agricultural workers are very vulnerable to becoming victims of human-tiger conflict and there is a high probability that they will encounter a tiger in the company concession area.



In the socialisation meeting, the field employees gained understanding about tiger and bear behaviour, ways of determining and differentiating animal footprints, methods to avoid conflict and procedures that be must followed in

the case of coming into contact with a tiger.

August and September 2011

From mid-August until 22nd September 2011, all members of the WCCRT joined forces with fire fighting activities in the forested areas in Jambi Province, including key tiger habitat areas in Berbak National Park.



Forest fire in Jambi Province. All members of WCCRT combated forest fires in key tiger habitat, particularly in Berbak National Park.

The wild fires surrounded one of Sumatra's key tiger habitats in Berbak National Park, Jambi, Sumatra, during August and September. They began with first hotspot being recorded on 15th August 2011 in a small, provincially protected conservation area called Grand Forest Area (TAHURA), situated in the Sempojen Area on the western border of the national park. In September, the forest fires included three hotspot locations inside Berbak National Park, including Rantau Rasau Area, Cemara Area and an area already burnt by forest fire in 2007. However, fighting fires in and around Berbak was not as straight forward as other fires as the fighters had to deal with mostly peat fires. BKSDA Jambi Province, Berbak National Park Agency and community-based dedicated fires fighting team were on site and continued to fight the fires.

Peat fires do not burn like other forest fires. While trees and lianas provide most of the fuel for other forest fires, in peat forests the peat itself burns with the fire moving underneath the forest and deep underground making it extremely difficult to extinguish. Underground fires make it very hard to predict where the fire is moving, often with fires reappearing on the surface hundreds of meters away from the original fire hotspot. The combination of these factors makes peat fires one of the most difficult types of fire to combat, often resulting in them burning out of control for several months. Fire fighting through the spraying water over the surface is less effective, because fire fighting must ideally be done through injection of water deep into the peat soil to reach the smouldering fire.

The central government provided support by seeding clouds to create artificial rain in Jambi Province for 2 days. It also funded and deployed helicopters to drop water bombs on the burning forest. This rapid assistance by central government was carried out concurrently with the working visit of the President of the Republic of Indonesia to the province on 22nd to 24th September. Three fire fighting teams were set up with funding raised by the ZSL/21st Century Tiger Fire Appeal. Team members included national park officials, community-based fire fighters and ZSL staff and they monitored and successfully extinguished the fire which was in a remote location deep within the park.

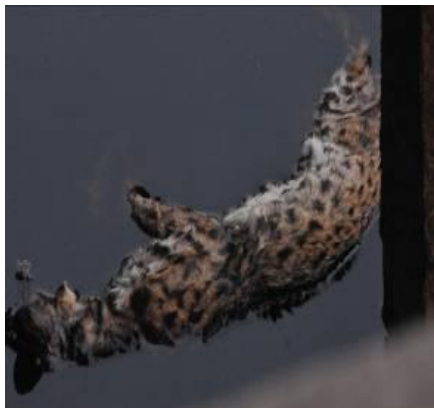
There were a total of 961 fire hot spots in Jambi Province. While less than neighbouring provinces such as Riau and South Sumatra, the main focus of the Jambi fires was in the area closest to Berbak National Park. The WCCRT, led by Mr. Nurazman, conducted monitoring of forest fires and their impact on wildlife in mid-September.

WCCRT post-fire monitoring activities focused on areas around known tiger habitats in Berbak National Park and in potential wildlife-human conflict areas, i.e. in palm oil plantations, ex-timber concessions and Rantau Rasau Village. More than a thousand hectares of land were burned in a short time period. The team reported that the underlying causes of the forest fires were the long dry season and the culture of local people using slash and burn practices to open up agricultural land.

Prior to these occurrence of forest fires, while monitoring these locations the WCCRT often encountered wildlife species such as Sumatran tigers, leopard cat, clouded leopard and sun bear, through direct encounters, footprints or faeces. The ex-timber concession was the location where female tiger "SALMA" was captured in 2009. Tiger habitat conditions in the area were destroyed by wild fire, except where the concession borders with palm oil concession where roads and canals form a fire break.



Picture 8. Forest fire area during September 2011, include sumatran Tiger Habitat in palm oil consession



Picture 9. Member of WCCRT has found a leopard cat in the region where the Sumatran tiger habitat area was burned. This species is found dead and floating in a canal in the palm oil concession



Three sites were surveyed located at a range of 8-14 km from Berbak National Park this was estimated to be the approximated distance a Sumatran tiger is able to move quickly when trying to avoid the fires. This was to determine if any Sumatran tigers had been trapped by the fires and subsequently injured or killed. The team discovered the remains of a leopard cat or “Kucing Akar”(Prionailurus bagelensis) floating in the canal, which had been subject to such a fate. There have been concerns raised about the resulting long term damage that may have occurred to respiratory system of large wildlife, which may impair them well into the future after the fires have been extinguished.

October 2011

Results of WCCRT monitoring determined that forest fires in wildlife-rich areas can increase the incidence of wildlife-human conflict, particularly with the Sumatran tiger, directly due to the loss of habitat. It was proposed that more research needs to be done in locations already affected by fires, to look for evidence that wildlife species had been burned to death, especially the Sumatran tiger. The WCCRT again stressed the importance of cooperation with the private sector and local community to participate in post-fire conflict prevention activities in Sumatran tiger habitat.

November 2011



The WCCRT conducted jungle patrols around Rantau Rasau village. There were no indications of potential tiger-human conflict and no reports of villagers or livestock having been victims of tiger conflict. No tiger traces were found in the vicinity of the community farm.

However, villagers did report that, in the event of heavy rainfall and flooding in the forest, tigers will come out of the forest area to get easier access to their prey.

December 2011

The WCCRT conducted a ground truthing visit to Petaling village, Sungai Gelam Sub-District. This was in response to reports by state-owned oil company PT. Pertamina concerning the presence of Sumatran tiger in its oil drilling concession. Sungai Gelam has had a high incidence of wildlife conflict, especially with tigers, the peak of which occurred between late 2008 and April 2009 when 9 people were killed by a tiger. A primary cause of this conflict was the rise in sea level due to coastal erosion and inundation of farmers' fields, which compelled the tiger to move towards settlements and palm oil plantations which were drier than their swamp forest habitat. In addition, tiger habitat in the area had been decimated by illegal logging and forest conversion to oil palm plantations.

WCCRT monitoring, found evidence that a female tigers and her 2 cubs were living in an oil drilling site next to Petaling village. This location is very close to residential areas, schools and public roads, making it very dangerous for the surrounding community, workers and for the tigers themselves. WCCRT warned all villagers and employees to be careful when performing daily activities in the field.

January 2012

The WCCRT continued to survey the area, collect additional information about the tiger and her cubs. The tigers remained undisturbed by the villagers and no human tiger conflict occurred. Further socialisation and training was given to those villagers who keep livestock. Instructions on how to construct wildlife scaring devices were given.

February 2012

The WCCRT investigated a tiger death that occurred in Simpang Gajah, an area located inside Berbak National Park about 150m from the Air Hitam River. The highly decomposed remains, including the hide and bones, were found by the ZSL and WCCRT Survey Team when they were

placing camera traps in the forest near a popular pathway used by hunters targeting tiger prey species such as deer. The snare, which had been set by these hunters for larger deer, snared the tiger around the left paw. The tiger had been unable to break itself free and most likely, judging from the scratch marks on the tree, died from dehydration and exhaustion.

The team found a snare and hunters' shelters and estimated that the trap had been installed 1 month previously. The WCCRT removed the carcass and conserved parts of the tiger's body as evidence. The WCCRT formed an investigative team to find the suspects and remove all remaining snares, including the small mammal traps that were also found.



Picture 11. WCCRT and ZSI Survey Team discovered and removed remaining tiger snares found inside the national park forest.

This case highlighted that at the moment the park is still very much under protected and there is a need to increase forest patrol activities in Berbak National Park to prevent hunters to moving freely through the park to set up their snares. It was proposed that the most vulnerable areas of the park boundary need to be identified and more guard posts need to be set up and manned.

March 2012

On 30 March 2012, tiger-human conflict occurred in Air Hitam village, located adjacent to Berbak National Park. The incident occurred in a palm oil plantation owned by local residents, where again high-voltage electrical fencing was being used to deter pigs. This incident led to the death of a female tiger named 'Mahadewi' – another tiger well documented by the ZSL monitoring team.

Air Hitam village seems to provide habitat that the tigers from the National Park visit regularly, as the 2 adult tigers killed by high-voltage electric fence in 2011 were close to the same area. Efforts had been made in the past to speak to the community and coordinate with local police to discuss the dangers of this fencing and to highlight the tragic case of a human mother and daughter also killed by these fences. Villagers agreed that high-voltage fencing is dangerous but, due to the increase in the price of palm oil and the number of pests in Berbak, they began again to install high-voltage electric fence to protect their agricultural land.

WCCRT personnel took the tiger Mahadewi's carcass to the Animal Laboratory in Jambi for autopsy. Laboratory results confirmed that the tiger had been killed by electrocution from the high-voltage fencing.

The WCCRT immediately coordinated with the local Government of West Tanjung Jabung District to develop regulatory policies for the use of electrified fence to protect agricultural land from pests. They have also begun to coordinate much more closely with the local police enforcement efforts

related to this case. However, to date, the appropriate articles of legislation have not been identified. WCCRT and the Regional Police Office have been investigating the crime which will be reported to the higher authorities (Ministry of Forestry, Provincial Police Office, and the Governor of Jambi), so the seriousness of this continued practice becomes a major, high-priority concern which must be dealt with.

Alternatives are being explored but currently none so far seem to be as cheap or as effective a deterrent as these fences, so while alternatives are slow to arrive, it was decided to focus on presenting a stronger disincentive to the communities. Between 13-15 March 2012, an integrated team consisting of WCCRT, Regional Police Office, Berbak National Park and the Nature Conservation Resources Agency conducted a crime scene investigation at the site. Follow-up efforts by the Regional Provincial Police included writing an investigation report letter, confiscating evidence and summoning witnesses for questioning.

After discussion and reviewing the findings it was determined that the next step should be to bring a lawsuit against the suspect, prosecuted by Berbak National Park Office, the Nature Resources Conservation Agency (BKSDA), the WCCRT and Regional Police Office. Taking this high-profile case to court is expected to raise awareness across the community that causing the death of a tiger with high-voltage electric fence is illegal and that there will be legal consequences.

3. Develop and Review Standard Operating Procedure for WCCRT

A Standard Operating Procedure (SOP) document for WCCRT was created, reviewed and produced based on lessons learned and the experience to date of WCCRT in the implementation of human-wildlife conflict management.

This SOP is expected to increase WCCRT capacity for dealing with tiger-human conflict in a professional and effective manner.

The SOP explains comprehensively all aspects of inspection and risk assessment of human-tiger conflict, flow and analysis of information, database management, victim compensation and legal process, procedures for handling conflict and wildlife conflict handling equipment and supplies. See Annex 2 for more detail.

4. Concluding Remarks

During this phase of the project, the WCCRT has demonstrated increased capacity to cope with tiger-human conflict. This is evidenced by the high level of response to problems and conflict situations as they have arisen. Overall, both stakeholder and community responses to the WCCRT unit have been very positive and the goals which were set out during the grant period have been achieved to the best of the unit's capabilities. The capacity and skills to deal with wildlife crime detection and prosecution are steadily being built on as the trust between the communities and the unit continues to develop.

The WCCRT is widely respected by the public in Jambi for its dedication and capacity in resolving wildlife conflict and crime - a reputation which the unit will continue to build upon. Capacity areas identified as strengths of the WCCRT were:

1. Rapid response to reports of wildlife crime and conflict in communities; communities felt supported.
2. Strong relationships built with communities and the private sector by frequent visits and follow up after conflict events.
3. Increased conservation awareness in communities and local government of the protected status of the Sumatran tiger.
4. Increased WCCRT capabilities in handling tiger-human conflict practically and in conjunction with law enforcement agencies.

Capacity areas where it was felt that the team needed to improve were:

1. Time and resources management, balancing official work commitments and commitment to the WCCRT.
2. Further strengthen relationships and trust with communities, particularly in potentially sensitive issues associated with wildlife crime and conflict, as there is still some reluctance to contact or work with the team; develop tiger conservation orientated community-based program.
3. Increase coverage and frequency of forest patrols within the National Park boundaries, private sector concession areas and community farm areas.

The recent tiger deaths highlight that the WCCRT needs a long-term and comprehensive development program to protect tigers and their habitat, ideally in tandem with a wider education project involving communities. The program needs to be developed, not only to respond during or after a conflict has occurred causing losses to both tiger and human, but also to be able to detect potential sources of conflicts early through intensive regular forest patrols, tiger conservation outreach to the local community and providing practical and appropriate solutions, especially to communities around the most sensitive tiger-human conflict areas. Tiger deaths in agricultural areas indicate that the WCCRT need to develop a program of tiger-friendly agricultural farming practices and land use to resolve the key cause of recent tiger losses to the population of Berbak and Jambi.

Expenditure

	Activities	Grant Allocation	Total spend Qtr 1 & 2	Total spend Qtr 3 & 4	Variance
Field responses	Running motorbikes for ZSL team joining UPKKL	173	99	74	0
	Transport	188	107	80	0
	Investigation practice	375	200	175	0
	Detection equipment	406	250	156	0
	Field responses to information received	1050	700	350	0
Investigation work	Intelligence and information network costs	1469	839	629	0
	Coordination and institutional lobbying	179	100	79	0
	Sustained investigation /response costs	521	110	411	0
	Performance-related bonuses	625	119	506	0
Salaries	UPKKL team Wildlife crime / conflict liaison officer	1229	703	527	0
	Wildlife crime unit honorarium	3425	1957	1468	0
Training	Honourarium during training	500	0	500	0
	Investigation review and training	174	0	174	0
	Support visits by PHSTKS rangers	285	0	285	0
	Training Community Ranger candidates	379	150	229	0
	Totals	10976	5334	5643	

Please note all figures are in GBP.

APPENDIX 1

TABLE 1. HUMAN – ENDANGERED SPECIES WILDLIFE CONFLICT IN JAMBI PROVINCE (JANUARY – SEPTEMBER 2011)

NO.	ANIMAL SPECIES	LOCATION	DATE	WILDLIFE CONFLICT DESCRIPTION	FOLLOW-UP EFFORT TO ADDRESS HUMAN-WILDLIFE CONFLICTS
1	Sumatran Tiger	Air Hitam Laut Village, Tanjabtim District	16 February 2011	Tiger died by high-voltage electric fence.	Ground checks, evacuated carcass and conserved part of tiger body, took geographical coordinate point and documentation of evidence. Proposal to implement 'low voltage and wildlife-human friendly electric fence' in agricultural areas. Tiger monitoring by camera traps in agricultural areas.
2	Estuarine Crocodile	Muara Danau Village, Merlung District	21 February 2011	Crocodile entered residential area in Muara Danau Village.	Ground checks, took geographical coordinate point and documentation of evidence. Planning and proposal for establishment of protected essential ecosystem areas.
3	Asian Elephant	Palm Oil Plantation Bungo District	16 March 2011	Elephant entered palm oil plantation.	Chasing and coordination with local government.
4	Sumatran Tiger	Air Hitam Laut Village, Tanjabtim District	21 March 2011	Tiger died by high-voltage electric fence.	Ground checks, evacuated carcass, <i>visum et repertum</i> , and conserved tiger body which was still intact, took geographical coordinate point and documentation of evidence. Tiger remains entrusted to and secured in Berbak National Park office. Proposal to implement 'low voltage and wildlife-human friendly electric fence' in agriculture areas. Tiger monitoring by camera trap in agriculture area
5	Malayan Bear	Lubuk Kambing Village, Merlung District	28 March 2011	1 local resident injured. Bear pursued resident.	Ground checks, but no victim was found. Urged residents not to go into the garden alone.
6	Leopard Cat	Sungai tering Village, Tanjabtim District	1 April 2011	Cub born near a residential settlement.	Chasing and urged residents to take care.
7	Sumatran Tiger	Oil Plantation, Muara Jambi District	1 April 2011	Tiger entered palm oil plantation.	Ground checks, tiger footprint exploring, took GPS reference, documentation of evidence. Human-tiger conflict socialisation meeting with company employees and urged employees to be vigilant when working.

8	Sumatran Tiger	Palm Oil Plantation. Kertapersada	1 May 2011	Tiger entered palm oil plantation	Ground checks, tiger footprint exploring, took GPS reference, documentation of evidence. Human-tiger conflict socialisation meeting with company employees and urged employees to be vigilant when working.
9	Sumatran Tiger	Palm Oil Plantation. Kertapersada	1 May 2011	Tiger entered palm oil plantation.	Ground checks, tiger footprint exploring, take GPS reference, documentation of evidence. Human-tiger conflict socialization meeting with company employee and for workers to be vigilant when working
10	Sumatran Tiger	Oil drilling areas of PERTAMINA (state owned oil company) in Sungai Gelam and near settlement areas, Muaro Jambi District	29 December 2011	Female and cub Sumatran tigers entered the oil drilling area.	Ground truthing, searched tiger tract to find evidence tiger presence, recorded geographical coordinate point and documented evidence. Held human-tiger conflict socialisation meeting with PERTAMINA employees and the local community to urge all to take a care when working in the field. Developed an information monitoring system for checking tiger presence in the area.
11.	Sumatran Tiger	Community-owned rubber plantation, Merangin District	January – February 2012	2 local residents injured and 1 hunting dog killed.	Ground truthing, searched tiger tract to find evidence of tiger presence, recorded geographical coordinate point, documented evidence, set up local task force, installed camera traps to monitor tiger presence. Held human-tiger conflict socialisation meeting with local community and urged all to take a care when in their plantation.
12	Sumatran Tiger	Berbak National Park Forest, Tanjabtim Timur District	15 February 2012	1 tiger killed by a snare.	Ground truthing, removed the carcass and conserved part of the tiger's body. Recorded geographical coordinate point and documented evidence. Formed an investigation team to find the suspects and remove remaining snares.
13	Sumatran Tiger	Community-owned palm oil plantation, Air Hitam Laut village, Tanjabtim District	30 March 2012	1 female tiger electrocuted by high-voltage electric fence.	Ground checks and removed carcass, visum et repertum, and conserved the tiger's body which was still intact. Recorded geographical coordinate point. Crime scene investigation involving Regional Police to bring this case into the legal system, to act as a deterrent to other people who use high-voltage electric fence to protect their gardens from pests, especially pigs.

MINISTRY OF FORESTRY
DIRECTORATE GENERAL OF FOREST PROTECTION
AND NATURE RESOURCES CONSERVATION AGENCY- JAMBI PROVINCE
AND
ZOOLOGICAL SOCIETY OF LONDON – INDONESIA PROGRAM

STANDARD OPERATING PROCEDURE
TIGER – HUMAN CONFLICT IN JAMBI PROVINCE



EDITED BY:
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Jambi, March 2012



FONDATION SEGRÉ



21ST CENTURY TIGER
giving wild tigers a future

FOREWORD

Our Praise to Allah SWT's for the mercy and grace so that we can carry out the duties and responsibilities of forest conservation and wildlife conflict management in the province of Jambi.

It should be recognised that the Province of Jambi still has large expanses of forest which serve as habitat for hundreds of wildlife species and thousands of plants species, both protected and unprotected. But rapid development in the area is increasingly threatening the wildlife, with huge areas of forest being lost due to encroachment, illegal logging and forest conversion. This has resulted in increased human-wildlife conflict as wildlife is forced out of its natural habitat, towards areas such as plantations, forest edges and borders of residential land resulting in the wildlife-human conflict that causes problems for both sides.

Between 2010–2012 there have been incidences of wildlife-human conflict, including species such as the Sumatran Tiger, Sumatran Elephant, Sun Bears and Crocodiles.

Standard Operating Procedures (SOP) have been drawn up based on our experiences when dealing with these conflict situations. It is hoped that these SOP will be a reference tool to advise future policy decisions so that conflict prevention and resolution can be more effective, fast and reduce the impact of conflict on both sides, human and wildlife.

This document is still a work in progress, so we would welcome your advice and input for future improvements. Thank you.

Jambi, March 2012

Editors

A. BACKGROUND

Jambi Province has a forest area of more than 2 million hectares, consisting of forest preserves, conservation forest, protection forest and production forest. The forest is inhabited by the Sumatran tiger which is now classified as seriously endangered.



The Sumatran tiger (*Panthera tigris sumaterae*) is under serious threat due to the extensive destruction of its forest habitat, in turn forcing the tiger to come out of the forest to hunt for prey in plantations, agricultural land, and even in residential areas.

Conflict occurs as a result of direct or indirect contact between humans and tigers. Every year the rapid increase in human population leads to increased needs for settlements and livelihoods, both of which result in huge tracts of forest being cleared. 2009 saw the severest human-tiger conflict in Jambi Province, with 9

people (mainly illegal loggers) being killed by Sumatran tiger. These attacks all occurred in one area of Muara Jambi district between January and May 2009.

Whatever the nature of the conflict or the wildlife species involved, human-wildlife conflict is a complex problem as it relates not just too human safety, but also to the safety of the animals involved. Experience to date should encourage the government and other relevant stakeholders to be wiser in understanding wildlife so that preventative and response actions can be undertaken with maximum impact. However it should be remembered that protection and improvement of wildlife species habitats is vital in the long term prevention of human-wildlife conflict.

For more than two decades, Sumatra has experienced conflict between humans and endangered species such as the elephant and tiger, leading to a significant decrease in the population of these species. This should highlight the importance of addressing human-wildlife conflict issues, putting further pressure on the species already under the threat of extinction, species such as the Sumatran tiger.

B. OBJECTIVES

1. Establish an effective and efficient SOP for handling conflict between humans and Sumatran tigers in Jambi Province.
2. Implement the Minister of Forestry Regulation No.P.48/2008, guidelines on the mitigation of wildlife conflict.

C. PREVENTION AND HANDLING OF HUMAN-TIGER CONFLICT

Sumatran tiger-human conflict in Jambi province has mainly been caused by the loss of tiger habitat and, in turn, of prey which results in the tiger being forced to have wider home ranges, leaving the forest in search of prey. However, in Jambi to date most of the human victims of human-tiger conflict were attacked by tigers while conducting illegal logging activities in the forest inhabited by Sumatran tigers. The description below outlines the procedures to avoid conflict between humans and tigers in various tiger-human encounter scenarios.

Scenario 1: FEMALE TIGER AND ITS CUB

Encountering a tiger and its newborn cub, either intentionally or unintentionally, creates a potentially very dangerous situation. Usually the tiger will roar as a warning. In this case, it is recommended not to panic and immediately seek a way to move 500 meters away from the tiger's den. If encountering the cub without its parent, do not approach or attempt to catch the cub. Sometimes the parent will leave their cub alone for a while and, if the cub is already well-developed and confident, it may wander independently away from the den. Due to the inexperience of the cub, it will not be able to sense danger and may come into contact with humans. However, an older cub can attack by itself and can cause serious/fatal injury. If the cub's parent is close by, their behaviour can be very unpredictable. Protection of their cub is the tiger's primary focus and it will do so without hesitation, challenging whatever they may encounter be it human beings or even moving vehicles. If you are on the road and see a tiger cub, then you should report it to the authorities.

Scenario 2: TIGER AND DOG

For unknown reasons, tigers have a tendency to like dogs and to hunt dogs as prey. A tiger can spend considerable time following a human who is accompanied by a dog without being noticed either by the human or the dog. The tiger will wait until the human is separated from the dog at which point the dog will disappear without any trace or sound because it has been killed by the tiger. Sometimes a tiger can follow a dog and human for several days and follow the human to his forest residence (probably a hut or cottage). In this case, it is not only the dog that is threatened, but the human is also in danger.

Sometimes the first tiger attack is unsuccessful, and the dog will hide. If this is the case the human (dog owner) must leave the scene and find safety. Do not try to defend your dog. A tiger which is already enraged to kill cannot stop itself and sometimes, regardless of human presence, the tiger will still pounce on the dog which is near the human/on the leg of the human. After taking the dog, the tiger will usually leave the human unharmed. You will not be able to save the dog. A dog can sometimes detect the tiger. In this situation, the dog will act weak or scared and stick close to its owner's leg and whine continuously. In this situation, if armed it is recommended that you shoot into the air or make a very loud noise and leave the site while still firing the weapon to scare the tiger. It is essential that you do not panic.

Scenario 3: TIGER AND PREY

If you are a hunter and already made a kill, if you find tiger traces in the vicinity of the hunting area, you should "announce" your presence to the tiger by making noises characteristic of human presence, such as: shooting into the air, metal noises, loud talking, hitting trees. Tigers will rarely touch an animal killed by hunters. Moreover, a normal and healthy predator may stop hunting if it senses human presence in its hunting area. The tiger, which has a sharp sense of smell, will usually choose to leave. However, if the tiger is encountered accidentally and is surprised, then it may attack. You should not approach the prey of a dead tiger. A bear may be eating the remains of the tiger prey and will become aggressive if disturbed. If a hunter becomes aware that they are after the same prey as a tiger the hunter should withdraw.

Scenario 4: INJURED or HUNGRY TIGER

After suffering from serious injury, the tiger will lose its will and ability to hunt. This can cause the tiger to approach a village to seek easy food in garbage areas, eat old carcasses or predate on livestock and dogs. The presence of an injured tiger can be a serious threat and it is recommended that only personnel who are experienced and properly equipped should handle such a situation. In the event of finding any tiger traces in your village you should be cautious. It is better to leave the area until you know it is safe. You should never walk alone and you must have the equipment necessary to protect yourself i.e. something that makes a noise. A sharp decline in the number of ungulates (the main prey of tigers) in forested areas will also increase the likelihood that tigers will be forced to go into villages increasing the danger of tiger attacks. Populations of ungulates in forested areas need to be continually monitored by specialist personnel trained in this field, who will provide continuous information and advice to the community.

Scenario 5: TIGER AND SNARES

It is common for hunters and trappers to use snare or sling and foot snare to catch tigers or other large prey. A snared tiger is very dangerous to approaching humans and will typically roar and scratch the ground until it hears a human approaching. The tiger will then stop and rest for a while until the human is closer, at which point the tiger will

roar again and likely attack. If the snare is broken or loose, there is little chance that the person will survive. They are often not the person who set up the snare. A tiger that has escaped from a snare will be traumatised and extremely dangerous.

Scenario 6: TIGER ON THE ROAD

Tigers can occasionally be seen on roads, either just crossing it or investigating something. In this situation the tiger will not harm car drivers as long as they do not stop or get out of their vehicle. Motorcyclists should not approach the tiger and should decide quickly either to pass the tiger at high speed or turn around. Cyclists should leave the vicinity immediately moving at a steady high speed and without showing any fear, making loud noises or shouting.

Scenario 7: INTIMIDATING OR THREATENING BEHAVIOUR

If a tiger is spotted, it should be seen as a warning to you. Usually a tiger will act quietly and does not want to be seen. Wildlife always has the potential to be dangerous, and it is necessary to remain cautious at all times. It will want to learn about the human it has smelled as it walks out from its hiding place to gather information. This cautious behaviour will allow the tiger to warn to its cub. In such cases, people should leave the area without shooting or further disturbing the tiger. The tiger can see humans as unwanted competitors and uses demonstrative behaviour to show that the tiger does not plan to kill the human, but is giving a warning that the tiger is there. Demonstrative behaviour is characterised by roaring, often in the dark (evening). In this situation there is no threat of direct attack, but the loud roar will make people tense/stressed/afraid or even panic. Other predators will also be terrified by this loud roaring. People should make loud noises, fire shots into the air, and should not panic, leaving the area in a calm manner without running.

Scenario 8: ATTACKING BEHAVIOUR

In the event of an accidental face to face encounter with a tiger, even if the animal is exhausted, it will immediately take action. You need to try and assess the situation in a calm manner. Usually the tiger will stand without moving for a while, followed by a roaring alert and then may pretend to pounce or attack. When displaying a tense stance, a tiger's ears are drawn back on its head, the hair on its head and neck will stand up and its tail will be stretched tensely. In this case, the situation is very dangerous and decisions should be made. In the case where the tiger is following you and has a tense stance you must try to avoid any encounter, as the tiger will try to defend itself and even attack. Usually the tiger will attack the human leg or even the hand if the person tries to defend himself. Tigers seldom view humans as prey so you should not act in haste assuming that the tiger will attack, when in fact it is only showing demonstrative behaviour. The tiger falling on its last pose of pretending to pounce is the final warning, although paradoxically, this usually only occurs to people carrying guns. Hasty shots towards the tiger will only make it attack/pounce, especially if the tiger is injured.

STANDARD OPERATING PROCEDURE

Based on their experience of handling wildlife-human conflict, the Wildlife Conflict and Crime Response Team (WCCRT), BKSDA Jambi and the Zoological Society of London (ZSL) have drawn up guidelines for standard operating procedures in handling conflict with Sumatran tigers and other species:

1. SOP - Prevention of Conflict Involving Domestic Livestock

1. Domestic livestock should be kept in sheds.
2. Sheds should be 2.70 m wide and 3 m long (to house 6 goats).
3. Sheds must be raised about 1½ m above the ground.
4. Sheds should be 1½ m high from the bottom of the shed.
5. Sheds should be built using 15 cm diameter logs for the main posts and frame.
6. The roof should be made of zinc or new drums.
7. The walls should be made of 2 cm thick boards or *kelukup*.
8. The distance between the boards should be 10 cm or 5 cm.
9. A feeding place provided in accordance with the head size of the livestock.
10. Barbed wire should be wrapped around the pole and between the gaps board
11. There should be a fumigation enclosure.
12. The estimated cost of a shed built to these specifications is Rp.700,000 (excluding the main timber).

2. SOP - Animal Translocation and Release

1. Administrative preparations (location, official report, official letter of approval of special activities, logistics, transportation)
2. Prepare of field equipment (ropes, tarpaulins, food, machetes, axes, pliers, wire tie, nails, wood, buckets, bailer, hoe, firearms, trumpet, and guns).
3. Prepare medical kit, including stretchers (vet's recommendation).
4. Examination of the animal (final) performed by a trained veterinarian technician.
5. Installation of a radio collar or a radio transmitter (upon recommendation).
6. Prepare a transportation cage.
7. Transport to the chosen location. Recommended that the location is flat and the vegetation in front of the cage is not too dense, the site is close to flowing water with open visibility of approximately 50 m for the wildlife that is being released.
8. Prepare the release area (before release).
9. Prepare the net (before release).
10. Find a suitable location for the cage containing the animal to be released
11. Installation of plastic strap on to the release of the cage(100 m)
12. Prepare official form to record release and install a camera trap.
13. Unlock the cage door.
14. Team retreats to the end of the rope (50 m away).

15. Open the cage door, if the animal is reluctant to move use of loud noises (firearms, cannon, trumpet).
16. Tidy up the equipment (1 hour after release).

3. SOP: Trap Installation

1. Preliminary conflict information (whether conflict with humans or livestock (information from the public meeting).
2. Field survey conducted after the initial information is received (recommended duration of 3 days)
3. Determine the feasibility of the conflict location for capture or trapping after the direction tiger movement has been proved or assumed. This should be near the shed or grazing area or near the remaining body of the animal being preyed on as bait, depending on the nature of the conflict.
4. If the prey is already eaten, use live bait such as a living goat.
5. Administrative preparations (location, official report, SPT, logistics, transportation).
6. Transport traps and personnel.
7. Transport cage to the location. (Suggest asking members of the community affected by the conflict to help.)
8. Install traps:
 - Traps should be installed at the edge of the track where traces of tiger movement were seen (left or right).
 - The trap position should be with the open door facing onto the track
 - Install the rope to open and close the trap gate
 - If you still have remaining parts of the prey, place them in the trap cage.
 - If there is no remaining prey, then put the live bait in a separate cage (placed in the end of the trap cage, near the thrower).
9. Install camouflage, including around the thrower (e.g. bushes and twigs).
10. Recommended to smear mud or odour on the lattice trap.
11. Ensure the trap door is clear of branches or stumps.
12. Inform the public about the trapping location.
13. Feed the animal prey or control traps every day around 10 am (for 5 days).
14. Patrol around the site.
15. Trap to remain if there are reports of further conflict.

4. SOP: Handling Caught or Confiscated Wildlife

1. When trapped in the cage, give the animal water to drink. This will help to calm the target species.
2. Lock the door with a padlock.
3. Cover the cage with a tarpaulin (to help calm the animal).
4. Transfer cage to the transport vehicle.
5. Transport cage to the KSDA office or a temporary shelter as recommended by the BKSDA.

6. Prepare administrative reports including: minutes of the arrest, incident reports (LK), official report of evidence registered and deposited, record of chain of custody for evidence (evidence escort), official support letter for activities (SPT)

5. SOP: Handling Human Casualties Affected by Wildlife Conflict

1. Ask for information from the public about the victim of the wildlife conflict.
2. Get information verified by a reliable source such as the head of local village or witnesses at the scene.
3. Prepare of administration, logistics, and health and safety equipment.
4. Process the scene of the incident (TKP) as follows:

1. Cases of mild or severe injury:

- Contact the family and ask for local community assistance to help evacuate the victim/s from the scene.
- Provide first aid at the scene by giving medicine/close the wounds of the victims who have sustained injuries.
- Take the victim immediately to the nearest medical facility for further treatment and, in the event of death, ask for an autopsy report from the health authorities.
- If the victim did not require hospitalisation, escort the victim to their home.
- After the victim has received treatment and has recovered, record the victim's details (name/age/address/employment etc and write an incident report
- Report the wildlife conflict incident to the relevant authorities including: nature and severity of the injuries, incident report, autopsy report and victim's personal details

2. In the case of death

- Contact the family and ask for help from the local community to assist in the evacuation of casualties from the scene.
- If the victim's body is still intact, immediately wrap it in a tarpaulin and transport it using a stretcher. If the body is not whole because it has been cut/torn, immediately search for the remains of the victim's body for up to a maximum of 5 days).
- Immediately take the victim's corpse from the incident scene to the nearest medical facility such as a Community Health Centre and request an autopsy report from the health authorities.
- Take the victim's belongings to the police to be handed over to the family.
- Ask the victim's family and the head of local village for full details about the victim and write the Investigation Incident Report.
- Document all activities and details of both the incident location, the incident scene processing, the evacuation process and to gather information from witnesses who saw or heard the incident
- Presenting the incident report the incident to conflict person in charge.

6. SOP: Wildlife Removal

1. Receive reports of wildlife conflict.
2. Preparation of administration (Task Order Letter, logistics, transportation)
3. Preparation of equipment:
 - GPS
 - First Aid Kit
 - Camera
 - Machetes
 - Axes
 - Firearms
 - Carbide cannon
 - Gas Matches
 - Carbide
4. Team travel to conflict location.
5. Information dissemination and coordination with local village officials.
6. Check the scene of conflict (including data collection and check traces and track movement of wildlife using GPS)
7. Dissemination and planning activities of the evictions
 - Agree number of team members needed
 - Agree schedule of release
 - Agree on method and process of release
8. The eviction technique includes:
9. Agree timing (preferably in the morning hours between 07:00 and 10:00, afternoon between 16:00 and 17:00, or evening hours between 20.00 and 24.00).
10. Decide relocation site (in the conservation area).
11. Position the cannon (in the trajectory of the tiger's path).
12. Position personnel
13. When the gate has been opened and no movement from the animal is observed – a loud noise maybe employed to startle the animal to move
14. If no movement is observed still after 10 minutes a noise may be employed again with more frequency to startle the animal to move
15. Confirm the position of the animal when it has moved and ensure that it is safe for the release team to return to the location
16. After release, the site will need to be monitored for 5 days to ensure that they do not return, this timing may be adapted in accordance with the environmental condition and requirement of the release site.

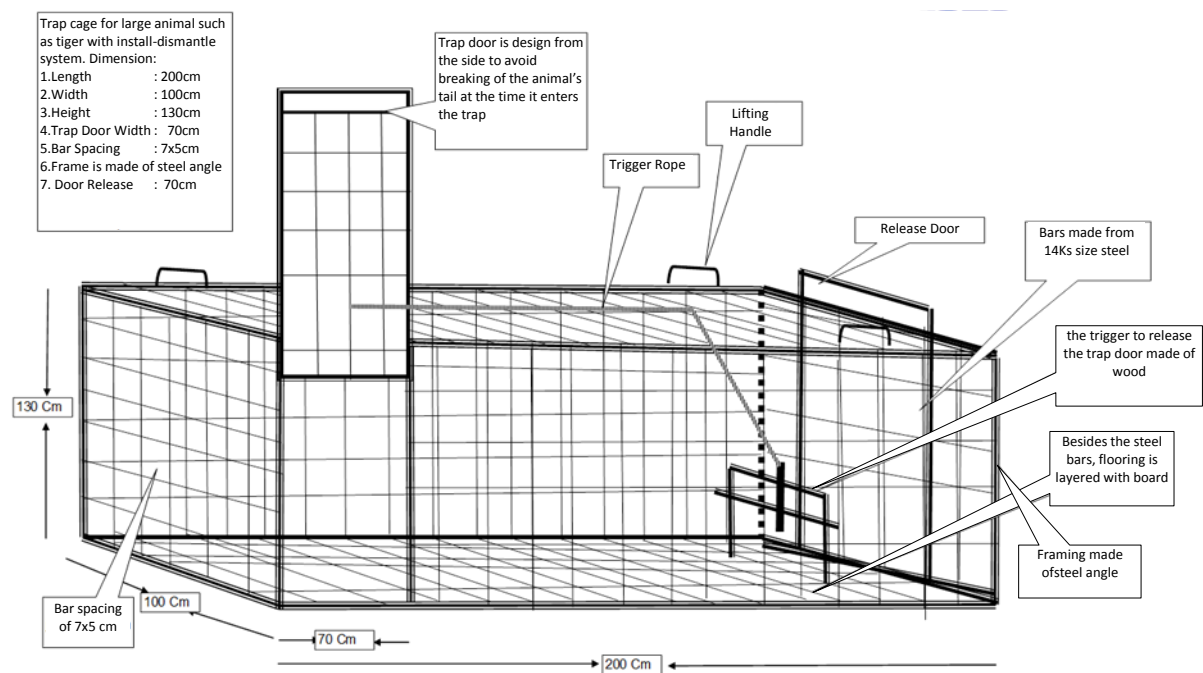
7. SOP: Rescue Wildlife Caught in Snare

1. Obtain verbal or written information.
2. Verify data and information.
3. Administrative preparations (Instruction Letter/SPT, GPS, First Aid Kit, logistics, etc.)
4. Prepare wildlife rescue equipment (stun guns, drugs, transport cage).
5. Travel to rescue site.
6. Coordinate with the relevant authorities (village head or company management representatives if the rescue site is located on a plantation).
7. Check the location and implement rescue action plan consisting of:
 - Estimate the required dose of anaesthetic based on the estimated weight of target species.
 - Anaesthetise the animal using dart sticks or stun gun.
 - Wait for drug to take effect (usually 15 -20 minutes).
 - Ensure the target species is fully unconscious.
 - Release the animal from the snare.
 - Carry the animal to the transportation cage.
 - Use water to keep the body temperature of the animal regulated.
 - Transport the animal to a site approved and agreed with the BKSDA to check the condition of the animal.
 - Prepare Reports and minutes of the rescue.

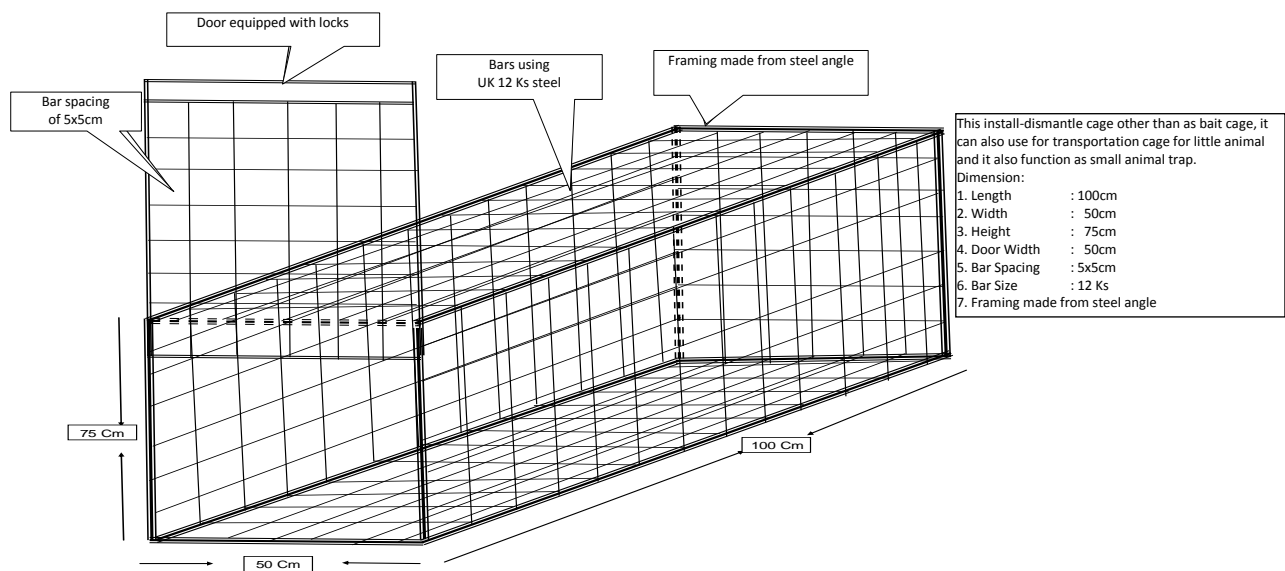
D. Trap Model

Trapping a conflict animal is the last resort in handling wildlife conflict. The aim is to save the target animal from being hunted and killed by residents who feel threatened by the animal. Traps are designed to be as safe and comfortable for the animals as possible while they are taken to a safe location. One standard trap used is the install-dismantle design, which is easier to transport to a remote location and is also easy to install. Some sample designs for traps, bait cages and transport cages for tigers and bears are illustrated below:

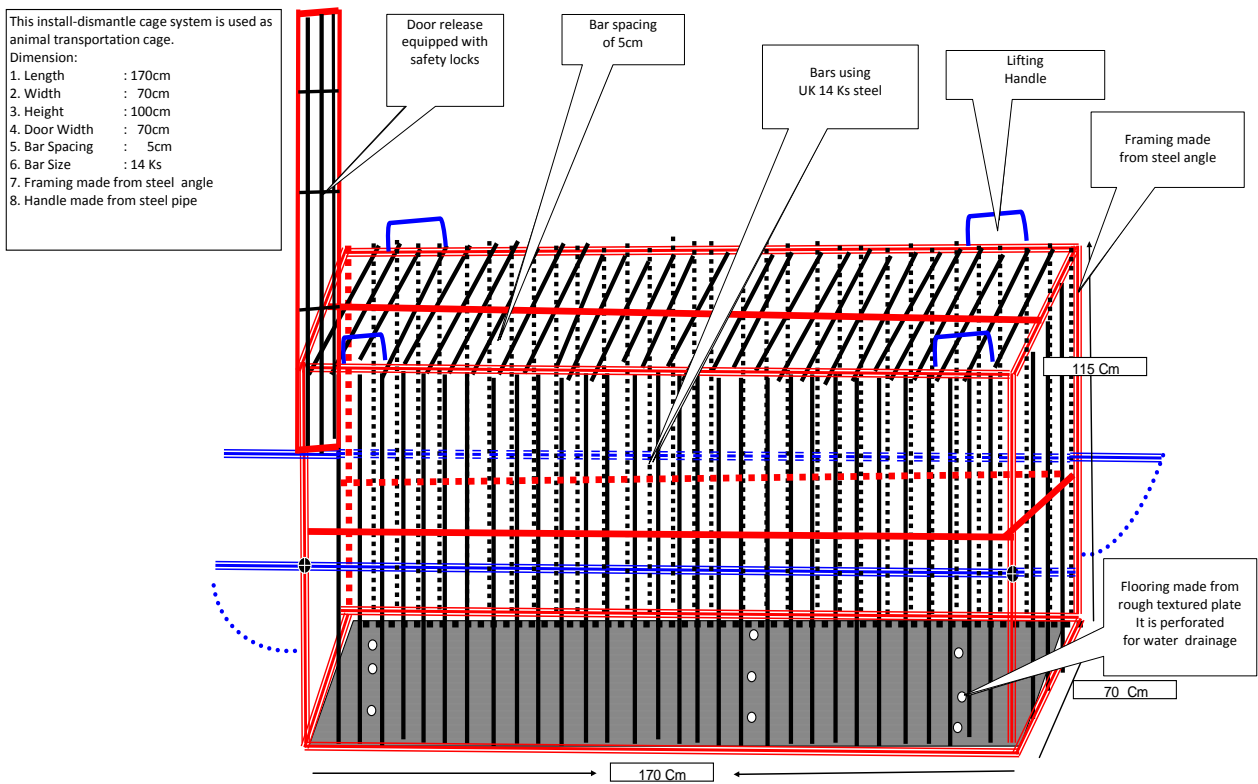
1 Tiger Trap



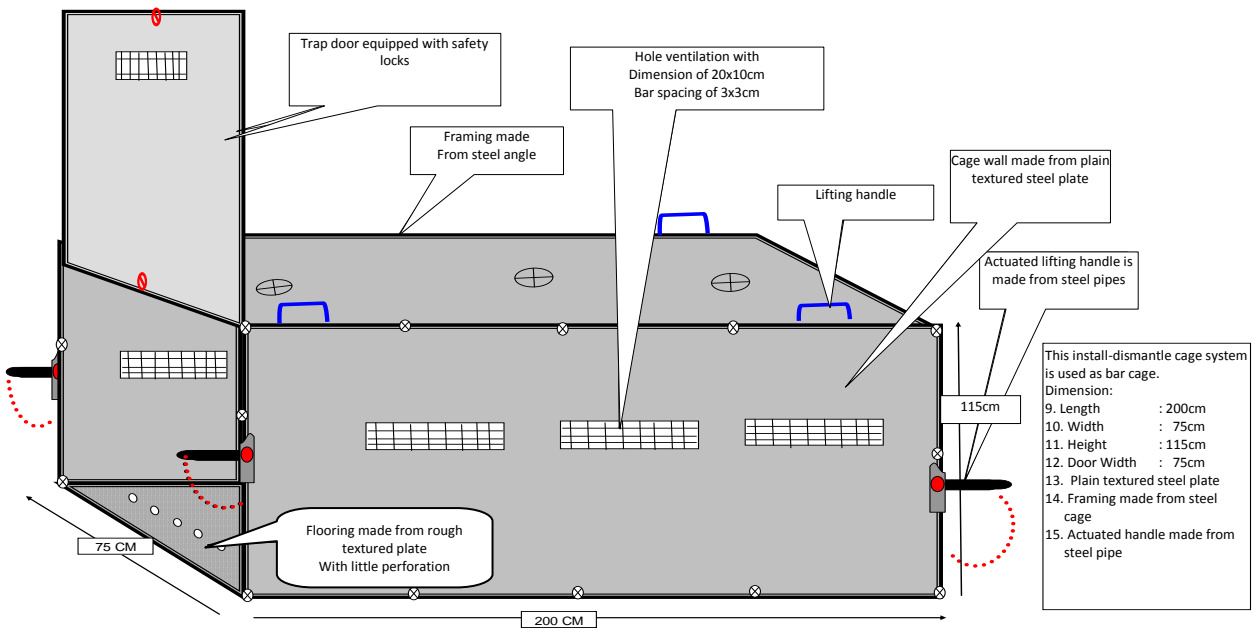
2. Bait Cage



3. Tiger Transportation Cage



4. Bear Cage



E. PRACTICAL WAYS TO AVOID WILDLIFE CONFLICT

There are some practical ways to avoid conflict with tigers and other wildlife as outlined below:

1. Try to avoid going alone into a field, garden or forest.
2. When starting work in the garden/field/forest, do not start too early (i.e. while it is still dark) and finish work and return home before the sun begins to set.
3. While working in the garden/farm/forest, it is recommended to wear a face mask that is placed on the back of the head or on top of a hat. This technique has been used successfully by people in India to prevent tiger attack.
4. Agricultural land/garden area must be kept clear of bush/shrubs so the arrival of wildlife can be seen in advance.
5. Install a bamboo warning device (kentongan)/iron near the hut or cabin, to sound the alarm when wildlife is moving in the area.
6. If you need to work longer in the garden/farm/forest to stay overnight, always light a bonfire to ward off wild animals.
7. Always carry a sharp weapon (chopping knife, machetes, spears, etc.) for protection.
8. Avoid working in the field during cloudy/rainy weather as these are conditions favoured by the Sumatran tiger for hunting.
9. If you do encounter wild animals, and the situation is suitable try to shout as loudly as possible.
10. Avoid roads or paths filled with shrubs, because wildlife likes to hide in the bush.
11. If you encounter a wild animal (Sumatran tiger), do not panic or immediately run away. Try to keep calm and walk backwards while continuing to look forwards. When you are far enough from the animal, move away as quickly as possible.
12. To reduce the risk of meeting wildlife, specifically the Sumatran tiger, avoid being in the field at the following times:
 - Between the hours of 04:00 and 06:00 a.m.
 - Between the hours of 12:00 and 13:30 p.m. (summer rain)
 - Between the hours of 5:00 p.m. and 03:00 a.m.

F. COMMUNITY PARTICIPATION IN WILDLIFE CONFLICT MANAGEMENT

Community-based activities to participate in the management of human-wildlife conflicts for the short and medium term are:

1. Formation of community groups

Community volunteer groups can perform various activities in order to assist with conservation efforts, raise public awareness, and protect the forest and provide security on plants, shelter from the elephant and tiger attacks, they provide a support network

for the village and are independent. Implement a variety of alternative livelihood activities in accordance with the potential and resources existing in each village .

2. Mentoring in the community groups

Mentoring activities in community groups are important to provide support/encouragement to groups or community organisations to conduct dynamic group activities. The mentoring process carried out by the WCCRT facilitates the activities of the community through training provided by the team or with groups, institutions or agencies that have specialist skills that the WCCRT do not have. In order to facilitate group activities in terms of human-wildlife conflict management and conservation of nature, the community group should meet regularly facilitated by a coordinator.

3. Development of a conflict tiger-handling model by the community

To address the human-wildlife conflict issues and potential loss of both lives and property, the community should be active participants in developing a conflict handling model for their village. The conflict handling activities design should be facilitated by the WCCRT by the community to ensure that it is practical, self-supporting and cost-efficient.

4. Development and Improvement of Community Alternative Livelihoods

Mentoring and development efforts need to be shared and ideally integrated with the communities surrounding the forest area as much as possible.

- a. Community welfare needs to be improved where possible.
- b. Public conservation awareness needs to be increased in villages.
- c. Rural infrastructure and facilities need to be increased according to local needs.
- d. Efforts to develop and increase alternative economic activities for the community need to be pursued by looking at the potential, resources and opportunities that exist such as REDD. These activities may also include intensification of agriculture, plantations, farms and others in degraded land.
- e. Community-based tiger handling and monitoring in its natural habitat. The Sumatran tiger will remain in its natural habitat and conflict handling and mitigation activities and the monitoring of tigers will protect each village from potential conflict. The initial target is no human or wildlife fatalities or casualties with minimum damage to livestock and land. If a village is especially remote, then intensive coordination and communication needs to be maintained to support the protection of the residents. An independent “guard mechanism” for each village is required, with an appropriate animal relocation strategy.

H. CLOSING REMARKS

Learning from experience is critical to develop the most efficient way to handle wildlife-human conflict problems and ensure community safety and prosperity. Hopefully with the improved knowledge of the community in avoiding and dealing with wildlife conflict, the people in the villages can take part in preserving the animals that are protected by Law while also improving the agricultural output and profits of the community.

Hopefully this article can be useful and inspire all parties to avoid and to handle animal conflict. In addition to developing the local economy, the protected Sumatran tiger can also be properly maintained and protected in its habitat.