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Conservation & Monitoring of Sumatran Elephants in Bukit Tigapuluh, Indonesia

FINAL REPORT TO INTERNATIONAL ELEPHANT FOUNDATION (IEF)

Final Report: January - December 2016

Frankfurt Zoological Society

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CONTENT

Fig. 1: Elephant “Indah” with her herd at the forest edge, on the move during a crop raiding attempt in the Bukit Tigapuluh Landscape, Jambi, Indonesia.

Abstract: The Bukit Tigapuluh elephants form the largest population of Central Sumatra but are threatened by poaching and Human-Elephant Conflict (HEC). Satellite/VHF telemetry based monitoring provided the vital information needed to run an Early-Warning-System (EWS), supporting both local communities and professional ranger teams in HEC mitigation and elephant protection.

Summary: Bukit Tigapuluh encompasses one of the largest existing lowland forests on Sumatra. This forest is the habitat of one of only a few remaining viable populations of the critically endangered Sumatran elephant. The Bukit Tigapuluh elephants are found almost exclusively outside protected areas and are threatened by habitat loss and human-elephant conflict (HEC). Several thousand people - most of them farmers - live in the immediate vicinity of elephants, and HEC is widespread. As a result of crop-raids, elephants have been poisoned in the past by distressed locals, and people have also been killed during HECs. Mitigating HEC was identified to be the most important conservation measure besides habitat protection.

The long-term goal of our initiative is to create a situation in which elephants and local people are able to coexist in a peaceful manner. Ongoing work focuses on immediate aid to reduce HEC by using well trained HEC mitigation teams, monitoring and researching HEC, testing HEC methods and strategies, education and awareness activities, and by initiating site-specific pilot projects and Community Based Conflict Mitigation (CBCM). In addition, monitoring of elephant groups using satellite telemetry has become a vital tool to bolster CBCM and elephant protection by anti-poaching ranger teams.

The project activities outlined in this interim report focused on the elephant monitoring component of the CBCM approach. Elephant monitoring was based on two different methods, satellite telemetry using GPS collars and field observations by ranger teams and local informants. The monitoring data was used to support HEC mitigation and elephant protection within the framework of FZS's landscape conservation program. Collared elephants (and with them their family group in case of females) were safeguarded by ranger teams as one measure to protect them from poaching and poisoning. Elephant position updates were also used to feed an Early-Warning-System (EWS) that informed FZS supported work groups in villages suffering from HEC so that local farmers could get ready for crop-protection before major damaged occurred.

In 2016, eight elephants were monitored using satellite telemetry and direct field observation methods. A total of 18,859 positions were recorded and processed by the EWS officers, and a total of 185 farmers were included into the EWS. While setbacks do occur and no strategy, including EWS and CBCM, will ever be able to provide 100 % safety for all elephants roaming the landscape, EWS supported CBCB has proven to be a very effective approach for conflict mitigation in Bukit Tigapuluh.

I CONSERVATION NEEDS

The critically endangered Sumatran elephant (*Elephas maximus sumatranus*) is a unique subspecies of the Asian elephant which is native to the Indonesian island of Sumatra. Habitat loss, poaching and severe conflicts with the human population resulted in a massive reduction of its range and numbers over the past century. Today, most of the remaining wild Sumatran elephants live in isolated forest patches which sustain only relatively small population numbers. In order to assure subspecies survival, a sufficient number of these small populations must be kept in a viable state and managed in the framework of a meta-population approach, with the goal to keep a minimum of 1000 elephants in the wild.

The first attempt to evaluate the conservation status of the Bukit Tigapuluh elephant population using scientific methods was undertaken by the Frankfurt Zoological Society (FZS) in 2008 (Moßbrucker 2009). Elephants used an area of about 1,100 km^2 and based on dung counts (line transect method), the population size was estimated to range between 150-180 animals, making the Bukit Tigapuluh elephants the largest population in Central Sumatra. A recent genetic based survey confirms that Bukit Tigapuluh holds an important keystone population of close to 150 elephants (Moßbrucker et al. 2015). While the resident elephants are - as are all other populations in Sumatra - threatened by poaching and Human-Elephant Conflict (HEC), a recent study revealed that if protected and managed adequately, the chances for survival are quite good (Moßbrucker et al. 2016b).

As elephants are frequently killed in respond to crop-raiding incidents, mitigating HEC became - in addition to anti-poaching patrols - one of the most important elephant management objectives in the region. FZS is putting huge efforts into eliminating the root of the problem (forest destruction) by habitat monitoring and protection using ranger patrols on the ground and by gaining the management rights over the most important elephant habitat (in cooperation with other partners such as WWF and The Orangutan Project). However, in addition to habitat protection and restoration, HEC must be reduced to acceptable levels for all parties (including conservation authorities, local communities, conservationists, and agriculture and silviculture companies), in order to reduce the risk of elephants getting killed.

Community Based Conflict Mitigation (CBCM) was identified to be the best strategy to address HEC in Bukit Tigapuluh. The basic principle of CBCM is simple: Local farmers maximize livelihood security while minimizing costs and work load for each individual through cooperation and team work. The core of CBCM is formed by local people organized in work groups. These work groups are providing most of the manpower and funds needed for HEC mitigation but are trained, supervised and supported by a small number of professionals – in our project by the FZS Elephant Conservation & Monitoring Unit (ECMU). Over time, input from outside the community can be reduced to a mere exchange of experiences with other CBCM projects and limited supervision, support and advice by experts, and CBCM becomes factually self-sustainable.

II PROJECT GOAL & OBJECTIVES

The final goal of our initiative is a ***peaceful coexistence between people and Sumatran elephants*** in the region. The immediate goal of the project outlined in this proposal is to reduce Human-Elephant Conflict (HEC).

The project objectives are:

(1) To monitor the resident elephants in order to support CBCM and elephant protection.

(2) To run an Early-Warning-System in order to mitigate HEC.

CHANGES: Linked to the investigation of an elephant poaching case the public Early-Warning-System (EWS) was shut down for several weeks with information flow limited to selected recipients only (such as authorities (police, forest police) and FZS ranger field teams). After the successful arrest of the poachers the full EWS became operational again. All other activities were implemented as scheduled. In addition to planned activities the FZS elephant team supported the investigation of the poaching case described in the appendix and supported the collaring of a female elephant in nearby Harapan Rainforest carried out in the framework of our partnership program with concession holder Pt Restorasi Ekosistem Indonesia (Pt REKI).

Fig. II/1: Hidayat measuring the tusks of tranquilized young bull Haris during collaring in July 2016.

III STATUS OF PROJECT ACTIVITIES

All project activities were implemented by the FZS Elephant Conservation & Monitoring Unit (ECMU). The ECMU currently consists of two teams (nine specially trained rangers each) lead by experienced field coordinator Albert Tetanus, supported by two Community Affairs Officers (CAOs), and managed by Dr. Alexander Moßbrucker (total ECMU = 22 people).

Elephant monitoring was based on two different methods, satellite telemetry using GPS collars and field observations by ranger teams and local informants. The large size and remoteness of the area occupied by elephants create challenging conditions, with satellite telemetry being a practical and cost-efficient method to monitor the movements of the resident population reliably.

The monitoring data was used to support HEC mitigation and elephant protection within the framework of FZS's landscape conservation program. Collared elephants (and with them their family group in case of females) were safeguarded by ranger teams throughout the project period of performance as one measure to protect them from poaching and poisoning. In addition, satellite telemetry data from previous years was used to conduct research on home range size and habitat selection (Moßbrucker et al. 2016a). Elephant position updates were also used to inform FZS supported work groups in villages suffering from HEC so that local farmers were able to get ready for crop-protection before major damaged occurred.

Following project activities were implemented:

- Monitoring of resident elephants
- Running an Early-Warning-System
- Re-collaring of elephants

III/1 Monitoring of Resident Elephants

Target: Monitor a minimum of five previously collared elephants

Progress to date: By the time of writing a total of five female elephants (Anna, Cinta, Freda, Ginting, and Indah, representing five different family groups) are monitored using satellite telemetry and direct observation and VHF telemetry by field teams in Bukit Tigapuluh. In addition, recently translocated young bull Haris and two females (Jenny and Karina), which are located in forest blocks close-by, are monitored by our team as well, as part of a province-wide elephant initiative with BKSDAE Jambi (local wildlife authority) and Pt REKI (ecosystem restoration concession, Hutan Harapan). One collared adult bull (Dadang) was shot by poachers in January 2016 (please find detailed information on the case attached to this report).

Elephant movements were monitored by plotting and forwarding elephant position data (in the framework of the EWS, see below). In the field, ECMU rangers directly observed elephants and had a closer look at their surroundings in order to detect threats such as poison/chemicals (set out on purpose, or accidentally left behind) and poaching.

Despite our efforts, one elephant, the bull Dadang was shot in January 2016. The incident has occurred just after our team returned from a collaring operation in a different part of Jambi province (Hutan Harapan), and the bull could not be guarded closely during this time. A detailed report of the incident can be found in the attachments to this report.

Freda's herd left the safety of TMA pulpwood concession, most likely due to wide-ranging harvesting that left only barren land, and widespread forest fires that affected much of the remaining conservation areas within TMA concession. After a difficult time (for us, local farmers, and the elephants) in farmland and plantations, the herd eventually reached the safety of ABT block 1 (ecosystem restoration concession managed by FZS and partners). However, towards the end of 2016, Freda's family decided to return to her old home range TMA, again moving through densely populated areas, giving our team a hard time. Interestingly, Freda's herd did not stay in TMA, but after a brief visit of about a months, is now (January 2016) on the way back to ABT block 1. It looks like that Freda and her family will keep us again busy for the next few weeks.

Another elephant, young bull Haris, however, topped Freda's movement by far: Haris left the safety of the Bukit Tigapuluh forest block in mid-2017, and moved several hundreds of kilometers through densely populated areas, swimming through the largest river in the area (Batang Hari, > 200m wide) three times, demolishing huts of the brick industry just next to the local police office, finally ending up in the neighboring province of Riau. As the situation was getting increasingly dangerous for both the elephant and the local people in his surrounding, it was decided to move Haris to a safer place: Hutan Harapan. The translocation was a full success, and Haris currently joins the residents herd (Jenny and family group). A detailed report on the translocation event can be found in the Appendix.

Status/Changes: Activities ongoing.

Fig. III/1-1: Elephant "Ginting" moving with her family through dense jungle (left) and part of the herd of elephant "Indah" during crop raiding (right).

Fig. III/1-2: Young adult bull Haris (left) and a subadult bull joining Anna, Cinta, and Ginting (right). Tuskers of all age classes are in danger of getting killed for their ivory and must thus be monitored closely in order to deter and detect poachers. However, despites all efforts the risk for bulls remains extremely high.

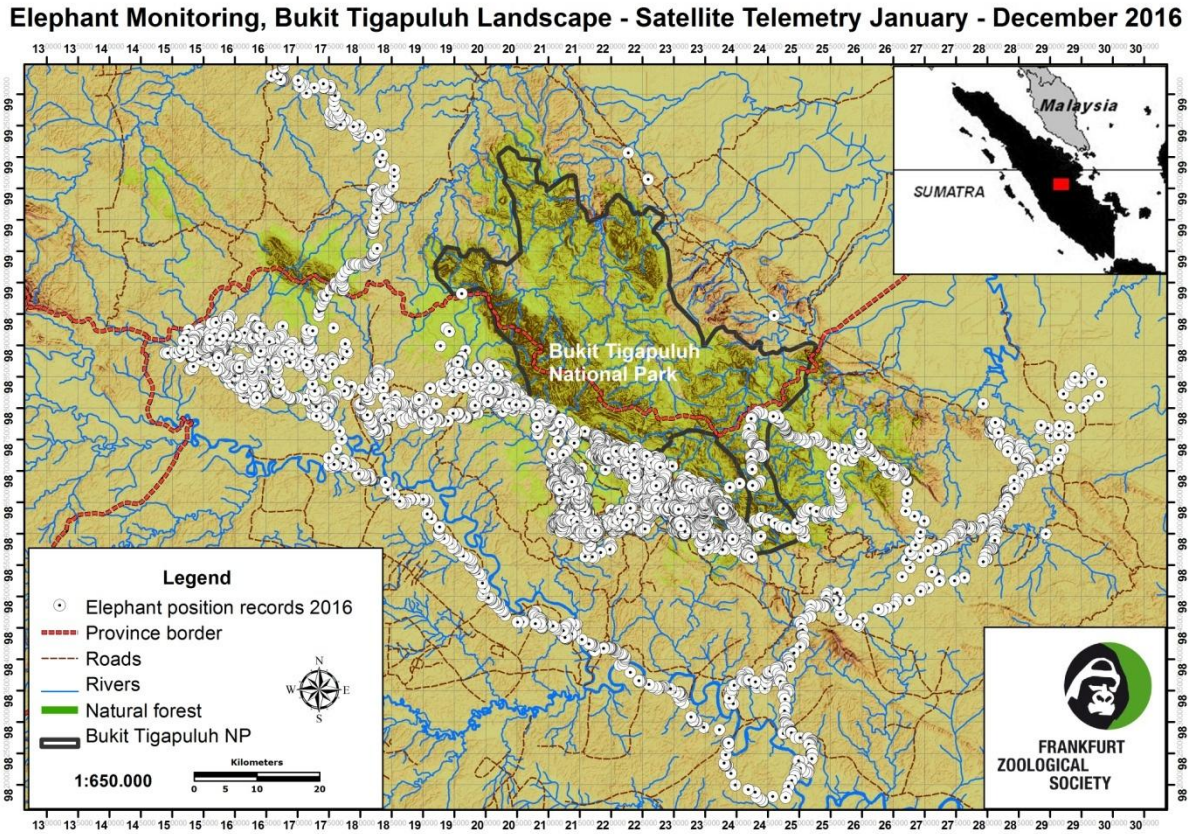

Fig. III/1-3: Elephant monitoring in the Bukit Tigapuluh landscape, Indonesia, using satellite telemetry. Monitoring period January to June 2016. A total of 18,859 elephant positions were recorded and processed in the framework of the Early Warning System and Information Network.

III/2 Running an Early-Warning-System & Information Network

Targets: Provide position updates and movement direction of crop raiding elephants for CBCM work groups, Indonesian authorities, and FZS field teams; receive, record, and communicate conservation issues.

Progress to date: Both our main conflict mitigation approach CBCM and elephant safeguarding are substantially supported by the Early-Warning-System (EWS). The EWS is based on GPS collar position data collected through satellite telemetry of collared elephants (currently five animals in Bukit Tigapuluh, and three elephants in other forest blocks). Elephant positions and movement directions were forwarded to ECMU teams twice a day and to farmer teams (part of CBCM) when the animals approached conflict hotspots, fields and plantations. This allowed farmers to get ready for crop guarding on time, and our teams to survey the surroundings where threats such as field chemicals and angry armed farmers are abundant.

Two-way communication between FZS field office, field teams, authorities, and local communities (e.g. farmers included into CBCM) is realized via the FZS information network that is active at the landscape level since early 2010. This network currently includes 185 farmers and 11 designated communication outposts distributed all over the elephant range, and directly connects to the KSDAE (local wildlife authority) office in Jambi.

Status/Changes: Ongoing, both the EWS and information network are permanent ECMU activities. In the third quarter the community component of the EWS was temporarily shut down on request by forest police due to the poaching incident involving one of our monitored animals, Dadang. During this phase information was only sent to local authorities and FZS ranger teams. The full EWS went operational again in early April and is active since.

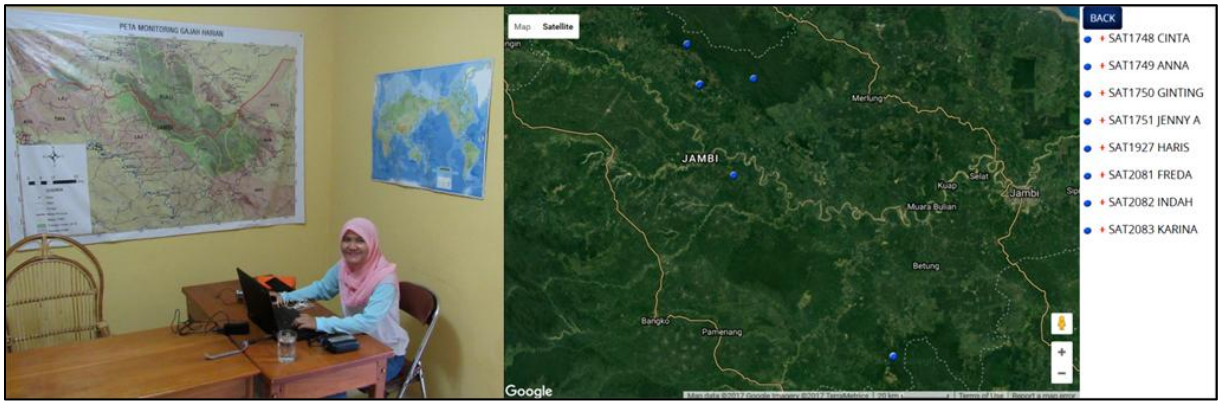

Fig. III/2-1: EWS officer and CAO coordinator Dyana Permatasari plotting elephant positions in the framework of the FZS elephant monitoring program, Jambi office (left), and a screen shot of the online application that retrieves real-time position updates of the monitored elephants and plots them on satellite images (right).

III/3 Re-Capture and Re-Collaring of Elephants

Targets: Take off old GPS/VHF collars fitted to elephants in previous projects and replace these non-active collars with new GPS/VHF collars.

Progress to date: The young bull Haris was re-collared by our team in July 2016. The animal was found to be in good health and no abrasions were found at the neck. The new collar should last now for about two years.

Two of our females, Freda and Indah, were re-collared in October 2016. While Freda was healthy and in good condition, Indah suffered from a deep wound on her flank, probably caused by a small bullet shot from a modified air gun. The wound was treated by Vet Christopher Stremme, and thanks to the treatment the elephant is well off now. Most likely Indah was shot at by illegal farmers in LAJ block 4 rubber plantation. It is urgently required to remove all illegal settlers from the core range of the elephant habitat. While the company has informally agreed to implement elephant friendly management in their concession, no action was visible on the ground. A report addressing these issues has been compiled and was sent to relevant stakeholders on 10th January. Our team will continue to monitor the implementation of elephant friendly management in the area.

In addition, our team collared a single adult female named Karina on 10.10.2016 as part of preparation for translocation. Karina lives about 30 km south from Bukit Tigapuluh, separated by all other elephants by the Batang Hari River and densely populated areas (e.g. Tebo city and surroundings). Karina most likely represents the remains of a once larger population of elephants. As there is no suitable habitat left to support a viable population in this particular area, and a single female does not hold any potential for elephant conservation if roaming isolated from other elephants, it was decided to translocate Karina to Hutan Harapan as soon as possible, where she can join the breeding program for the resident free-roaming herd. The translocation is currently in preparation phase, but the final schedule will depend on the wildlife authorities BKSDAE Jambi.

All collaring events were kindly supported by IEP Vet Chris Stremme, and elephant experts Nazaruddin and Hidayat. Collaring was always conducted under strict supervision of forest police officers (BKSDAE Jambi).

Status/Changes: Executed as scheduled. Two additional elephants, Jenny and Karina, were collared by our team in order to support elephant conservation in other parts of the province.

Fig. III/3.1: Nazaruddin and Veterinarian Christopher Streme getting ready to dart the elephant (left), Alex assisted by Nazaruddin and Hidayat collaring the elephant (middle), and "Jenny" with her new collar (right).

Fig. III/3-2: Re-collaring of young bull Haris. Routine medical treatment by Veterinarian Christopher Stremme, Pak Dayat measuring the length of Haris' tusks, and field coordinator Albert Tetanus supported by team leader Sakban and Pak Nazaruddin attaching the new collar (clockwise from upper left).

Fig. III/3-3: Re-collaring of Freda (left), and Indah just after re-collaring (right).

Fig. III/3-4: IEP Vet Chris Stremme treating a wound on Indah's right flank during re-collaring (left) and Alex and field coordinator Albert collaring female elephant Karina (right).

IV OUTCOMES, EVALUATION & OUTLOOK

The main positive outcome of the project was that neither humans nor elephants were killed during conflict situation or incidents linked to crop raiding. Thus, we successfully reached our most basic goal for Human-Elephant Conflict (HEC) mitigation, and we are happy that we are on the right way with our approach to HEC mitigation.

However, we lost one of the most magnificent animals of the Bukit Tigapuluh populations, the already somewhat famous adult bull “Dadang”. Dadang was shot by poachers early this year to get hold on his valuable tusk (he had only one fully developed tusk). The poachers could be arrested soon after the crime has occurred, and the case was present in local media for weeks with articles and public opinions clearly condemning the deed. The swift police action (triggered and substantially supported by our team) and trial will hopefully act as a deterrent for other potential poachers in the area. Nevertheless, the case shows that, in addition to HEC mitigation, we need to improve the safeguarding of at-risk animals with specific focus on adult males. We hope to secure additional funds for the upcoming season that will allow us to track and collar the remaining adult bulls (to our knowledge less than five), and to recruit additional staff we then can allocate for close-up monitoring as we do with the currently collared females.

While elephant monitoring is mainly conducted to support HEC mitigation teams and anti-poaching patrols in their efforts to de-escalate conflict and protect both local people and elephants, the satellite telemetry data obtained via the GPS collars can also provide valuable insights in elephant movement behavior and resource selection. A relevant study was conducted by project leader Alex M. and his team, and published in the journal Wildlife Research (see Moßbrucker et al. 2016a). In addition, elephant position data was used to design a site-specific conservation strategy that will become part of the national elephant conservation plan for Indonesia in 2017.

HEC mitigation and anti-poaching patrols are certainly among the most important activities that need to be kept up in the future. However, the mid- and long-term survival of the Bukit Tigapuluh elephant population is most directly linked to our ability to protect and restore sufficient elephant habitat in the Bukit Tigapuluh landscape. In addition to the ecosystem restoration concessions initiated by FZS and WWF (in cooperation with local partners) other forestry concession holders need to be included into a landscape wide collaborative elephant management. Starting early 2016, we are now on the way to move towards effective elephant managed with several important stakeholders (Sinar Mas, Barito Pacific) showing increasingly interest in elephant conservation within their production forest concessions. Elephant monitoring data obtained through GPS collars has provided key information to design elephant conservation areas and movement corridors within production forest concession, and will remain a crucial component in this context that supports elephant management and strategy evaluation. However, it is still a long way to go until the commitments made in top-level meetings are implemented in the field. Our role is

thus also one of a watchdog, that needs to monitor not only elephants and conflicts but also the implementation of elephant friendly management within industrial forest concessions.

Our general approach to elephant conservation in Sumatra is to manage several smaller, at least temporary viable, population as one large meta-population of a minimum of 1000 elephants in total. Bukit Tigapuluh will likely be one of the key population in this context, and computer simulations indicates that if elephant protection and adequate management is implemented, the population has a high probability of surviving even over the long-term (Moßbrucker et al. 2016b). Although we are certainly experiencing troubled times (poaching crisis and large-scale habitat destruction), there is hope for the Bukit Tigapuluh elephants!

Evaluation based on pre-set indicators:

a. successful completion of elephant collaring (should be completed within 20 days, with no harm to animals or project staff), min. five collars active
    - implemented as scheduled, a total of eight collars are active
b. number and distribution of active informants and contact persons that form the backbone of the Early-Warning-System (a minimum of 50 active informants distributed over all main settlements within and/or adjacent to the elephant range)
    - accomplished, > 180 active informants included
c. frequency of elephant position updates (roughly 12 updates per day, forwarded to field teams, farmers, forest police a minimum of twice a day)
    - accomplished, > 18000 position updates (average close to 12 updates per day and collar), with information forwarded twice a day (with the exception of a several weeks long pause of the public EWS)
d. no severe conflict (no people killed/injured, no elephants killed/injured) in the focus area of the project
    - partly accomplished: severe conflicts did not occur, but we lost one adult bull to ivory poachers early this year.

V LITERATURE

Moßbrucker, A. M., 2009, "Zum Status des Sumatra Elefanten (Elephas maximus sumatranus) im Landschaftsraum Bukit Tigapuluh , Sumatra , Indonesien : Abundanz Altersstruktur und Gefährdung", , Freiburg.

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Moßbrucker, A. M., Fleming, C. H., Imron, M. A., Pudyatmoko, S., and Sumardi, 2016a, "AKDEc home range size and habitat selection of Sumatran elephants.", *Wildlife Research*, 43(7), 566–75.

Moßbrucker, A. M., Imron, M. A., Pudyatmoko, S., Pratje, P.-H., and Sumardi, 2016b, "Modeling the Fate of Sumatran Elephants in Bukit Tigapuluh, Indonesia: Research Needs & Implications for Population Management", *Journal of Forestry Science*, 10(1), 5–18.

VI FINANCIAL REPORT

The total amount of 10,753.45 USD was spent within the project period. Two required budget modifications (differences in budgeted and actual amounts for several budget lines) were communicated to IEF via email and accepted by IEF on 12th August 2016 and 29th September 2016, respectively.

Tab. VI-1: Project expenses for the period January – June 2016. Project funds will be spend in the upcoming semester. A re-collar session is scheduled for July 2016.

Item #	Budget Item	IEF Budget	Expenses	Balance
	Project Personnel			
1	1 officer for early warning system x 12 months @ $350 / month	$2,100.00	$0.00	$2,100.00
2	Elephant expert Nazaruddin with assistant x 20 days @ $150 / day	$1,150.00	$2,491.44	-$1,341.44
3	2 forest police officers x 20 days @ $25 / day and person	$500.00	$226.18	$273.82
	Travel Expenses			
4	Travel costs collaring team & Vet, 3 persons x 2 trips @ $1500 / trip	$1,500.00	$3,931.80	-$2,431.80
5	Field transport collaring activity, 20 days @ $300 / day	$3,000.00	$895.68	$2,104.32
	Lodging and Meals			
6	Logistic & food supply collar activities, 15 persons x 20 days @ $250 / day	$2,500.00	$3,208.35	-$708.35
	TOTAL	**$10,750.00**	**$10,753.45**	**-$3.45**

Attachement 1: Report of the killing of Dadang

Since mid-2012 the adult bull Dadang was included into the FZS elephant monitoring and safeguarding program in Bukit Tigapuluh, Sumatra. Dadang, easily identified by having only one visible tusk, was selected to join the monitoring program as he was frequently involved in crop-raiding incidents, both being a potential threat to local farmers and being at high risk of getting killed due to his exposure during raids. While Dadang never actually threatened human life and was generally known for his peaceful character, his life was ended by poachers on January 18. The main motivation to kill the animal was to get hold of his tusk. A chronological summary of the incidents and following crime investigation is provided below:

- January 28th Dadang's GPS unit suddenly ceased to send position updates. Field teams were informed and the order was given to check Dadang's status. However, rangers could not be allocated for the search before 02. February due to heavy conflict in two other areas occupying all ECMU personal available at that time
- A first survey conducted in the vicinity of the last GPS location sent by the collar did not produce any results, neither Dadang nor his GPS unit could be detected
- As the field team was not able to pick up any VHF signal (the GPS collar has two in-built VHF units for backup) at the spot they expected to find Dadang, a larger survey was conducted in the surroundings, which however was equally fruitless.
- In the following days additional rangers equipped with radio telemetry equipment were deployed, scanning Dadang's entire home range for signs and radio signals of the collar. Eventually, a weak radio signal was picked up at a river close to Semambu village at February 11th and one of the VHF backup units could be recovered. After a thorough search the unit was found inside the river (Sungai Pekundangan) in roughly one meter deep water. The collar material has been cut with a sharp tool.
- The search was immediately intensified with focus on the immediate surroundings, which resulted in the detection of an already decaying elephant carcass later identified as Dadang (location: 48M 0212016mT 9869896mU). His left tusk was clearly cut off by a sharp tool close to the base and missing. Both local police and forest police were immediately informed about the incident and assistance was called in.
- After initial investigations by forest police and ECMU rangers a first necropsy was conducted February 13th by Veterinarian Dr. Musliadi supervised by forest police (KSDAE Jambi division) and local police (Polres Tebo), assisted by ECMU coordinator Albert Tetanus and additional ECMU rangers. This first examination did not result in any significant findings, but the case was officially registered by local police officers and an official crime investigation was started.
- A second and more thorough necropsy was conducted by FZS Veterinarian Dr. Andayani on February 18th assisted by Albert Tetanus and the ECCMU team, under supervision of a police investigation team (tim penyidik Polres Tebo). With the help of a metal detector a 3-3,5 cm large projectile was located in the head region of the decaying carcass. Further examination of the scull revealed a hole in the frontal area of the head were the projectile most likely perforated the brain. Interestingly both the part of Dadang's left tusks embedded in the scull and his incomplete developed

right tusk (not visible externally) were still present and could be secured by the investigation team. Following the necropsy the scull and other evidence were transported to Tebo city and catalogued by local police.

- In the following a team of local police officers and ECMU rangers intensified the investigations. As both the way how the ivory was cut off and the bullet (self made projectile, used in self-made local guns) indicated that the poachers were not professionals, the investigation focused on local communities in the surroundings. However, in spite of thorough telemetry surveys the main GPS unit could not be detected.
- After several weeks of investigation and numerous interrogations two subjects could be arrested by Tebo police on March 10th. The missing tusk was discovered together with the axe and saw the poachers used to cut off the ivory. Both subjects did admit the deed, and provided a detailed report on how they killed Dadang with two shots (one to the body, one to the head). Preliminary investigation results suggest that additional persons may have been involved in the case (attempt to sell the ivory), and further investigations and interrogations are underway at the time of writing.

Fig. 1: ECMU ranger Mardani holding the backup VHF unit after its discovery in the river Pekundangan (left) and the VHF backup unit with the main belting material cut off with a sharp tool (right; the handheld GPS in the picture served as a size reference).

Fig. 2: ECMU ranger Mardani just after the discovery of Dadang's carcass on February 11th only close to Semambu village (left) and a full size picture of the already decaying carcass (right).

Fig. 3: Second necropsy conducted February 18th by FZS Veterinarian Dr. Andayani (black uniform) assisted by ECMU coordinator Albert Tetanus (orange shirt) supervised by local police and forest police officers (left) and Dadang sculls showing the frontal area were the bullet perforated the brain (right).

Fig. 4: The projectile found in the head region of Dadang's carcass (left) and police assisted by ECMU teams securing evidence including Dadang's scull (right).

Fig. 5: The poachers Sukarno *alias* Pakde Cecep and Elpian Junaidi *alias* Mamang Elpian holding Dadang's left tusk just after their arrest (left), and the two poachers awaiting further interrogation by local police (right, picture source: Jambi update, online magazine).

Fig. 6: The two poachers in handcuffs on the way to their trial, followed by local police and media representatives. In the front: evidence secured during the investigation (picture source: Indopos).

Attachement 2: Attachement – Translocation of Haris

HUMAN INTEREST STORY: The successful translocation of young bull Haris

After a first translocation attempt (in respond to Haris' killing of a farmer) from the main road Jambi-Pekanbaru back to Haris' original habitat, Ex Dalek (ABT Block 1, Bukit Tigapuluh Landscape), young bull elephant Haris decided to keep on the move, presumably in search for a new habitat and unrelated mating partners. He left the Bukit Tigapuluh landscape and ventured far into densely populated areas, traveling more than 300 km in only 4 months, eventually ending up in Riau province, close to the Village Pauh Ranap, Peranap District / Inhu. As the situation was getting increasingly dangerous for both, Haris and the local population in his surroundings, local wildlife authority BKSDAE Jambi decided to take a bold step and relocate the elephant to a new habitat, Hutan Harapan (managed by PT REKI). This would not only solve the problems caused by Haris ventures, but also benefit the Hutan Harapan elephant population, which currently consists of females only. Some brief facts of the translocation are summed up below:

Implementing organization: BKSDA Jambi, supported by BKSDA Riau

Supporting organizations:

- ECMU (FZS & IEP, technical, personel, and financial support)
- Elephant Conservation Center Riau (ECC, support by providing 2 tame elephants and mahouts)
- Syah Kuala University, Aceh (technical support, Veterinarian)
- Way Kambas National Park (technical support, elephant expert)
- Bali elephant camp (technical support, elephant expert)
- Polda Jambi (Jambi police), Polsek Peranap (Riau police) (personel support)
- APP / Sinar Mas (financial support)

Haris was captured in Pauh village, Peranap / Inhu district, Riau province; 09.11.2016; 02:06 pm. After loading the elephant on a truck in the evening, the team moved towards Jambi, where the convoy arrived the next morning. After another day of traveling, elephant Haris was then released close to Hutan Harapan on November 11th, in the vicinity of the resident females. Both Haris and the resident herd are since then closely monitored by a joint team of FZS, PT REKI, and BKSDA Jambi. Monitoring will continue for a minimum of 6 months after the release.

Fig. A1: Sedated young bull Haris dragged out of the forest after the capture using tame elephants (koonkies).

Fig. A2: Loading Haris (in the middle) on a truck using two koonkies (left), and Haris traveling together with the tame elephants to his new home, Hutan Harapan (right). The GPS collar of Haris was taken off during the transport in order to prevent damage.

Attachement 3: Associated organizations & project media

Organizations associated with this project and their roles in the project:

- Frankfurt Zoological Society (FZS), implementing organization
- Ministry of Forestry and local conservation authority KSDAE, partner organizations
- Ministry of Research and Higher Education (RISTEKDIKTI), partner organization
- International Elephant Project (IEP), donor
- US Fish & Wildlife Service, donor
- Perth Zoo Western Australia, donor
- Disney conservation fund, donor
- International Elephant Foundation, donor
- Sumatran Elephant Conservation Initiative, communication platform

List of websites, blogs, social media accounts, etc associated with the project, its investigators, and organizations:

- https://sumatra.fzs.org/en/elephant-conservation/
- https://www.facebook.com/Frankfurt.Zoological.Society/
- https://www.facebook.com/Frankfurt.Zoological.Society.Sumatra/
- https://www.youtube.com/channel/UCftQLZzz0-eZ_L3qX79GiAA
- https://www.facebook.com/Sumatran-Elephant-Conservation-Initiative-110274309011937/

Conservation Education Movie „Manusia dan Datuk Gedang di Bukit Tigapuluh (B30)"

- https://www.youtube.com/watch?v=RsTYcwMQqug