ZSL Conservation Programmes

LIVING CONSERVATION

PIGS, PALMS, PEOPLE AND TIGERS

SURVIVAL OF THE SUMATRAN TIGER IN A COMMERCIAL LANDSCAPE

21ST CENTURY TIGER PROGRESS REPORT

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Proposal objectives

Eight objectives were listed in the original proposal:

1. Monitor, using radio-telemetry, the movements of several tigers in the oil palm plantation land and adjacent logging concession;
2. Look at habitat use, patterns of movement and home range size, and estimate population density of tigers in this region;
3. Use camera trapping data collected as part of other studies and radio telemetry data to estimate tiger population density in the area;
4. Assess habitat preference for these tigers and to assess habitat types which are not used by tigers;
5. Use these data to identify points of tiger-human conflict and make recommendations to minimise this conflict in the plantation;
6. Assist in selection of areas of the plantation to be set aside for the use of wildlife;
7. Produce recommendations for managing habitat in habitat corridors;
8. Strengthen the capacity of the Indonesian research team and IR to conduct conservation research (including providing the IR with training in English in preparation for future education in conservation).

Objective completion summary

Objective 1: Tiger capture and collaring

Capturing and radio collaring tigers formed the central part to the research during a two month capture period between March and May 2003. On the 2nd of May, 2003, the ZSL/Asiatic Persada Tiger Conservation Team captured, radio-collared and released an adult male Sumatran tiger. This was the first ever Sumatran tiger to be radio-collared. This success followed two months and 621 trap nights of effort. The tiger was caught after 553 trap nights. This was a high rate compared to trail traps set in Russia which required 2730 trap nights per trail capture. The capture was carried out using a humane leg-hold trap fitted with a trap transmitter. The monitoring team was thus alerted as soon as the tiger was caught and were able to administer the anaesthetic, fit a VHF collar and give the antidote within a few hours, minimising stress to the tiger. All tiger handling was carried out or supervised by ZSL's consultant Bart Schleyer, one of the most experienced tiger trappers in the world. The tiger was large (148.2 kg) and in extremely good condition, and recovered rapidly following the capture. Initial radio-tracking results showed he was active within two kilometres of the capture site. The capture represented the first success in what is hoped will be a series of successful radio-collarings. Although radio tracking the tiger is proving more difficult than expected (in particular when he is moving through thick forest), the team is obtaining regular fixes and it has already been shown that the tiger is using a far larger area within the plantation than previously expected. For a full account of the tiger capture please see the attached report.

Figure 1 - Latest photograph of "Slamet", the radio collared tiger (taken Sept 19th, 2003)

Objective 2: Investigate ranging patterns

Since only one tiger has been captured with fixes obtained intermittantly since May, quantitative information on ranging patterns are not yet available through radio tracking. However, from preliminary data a rough minimum convex polygon can drawn showing a minimum of 16 square kilometres used on a regular basis. However, it is also known from camera traps that the tiger is using the forest habitats to the north and south, although signals from the collar have not been picked up in these areas. A further interesting point is that the tiger was captured at the other side of the plantation to the area currently used, despite never having been seen on camera traps in that area previously and never having returned there since, showing that occasional excursions are made outside the usual range area.

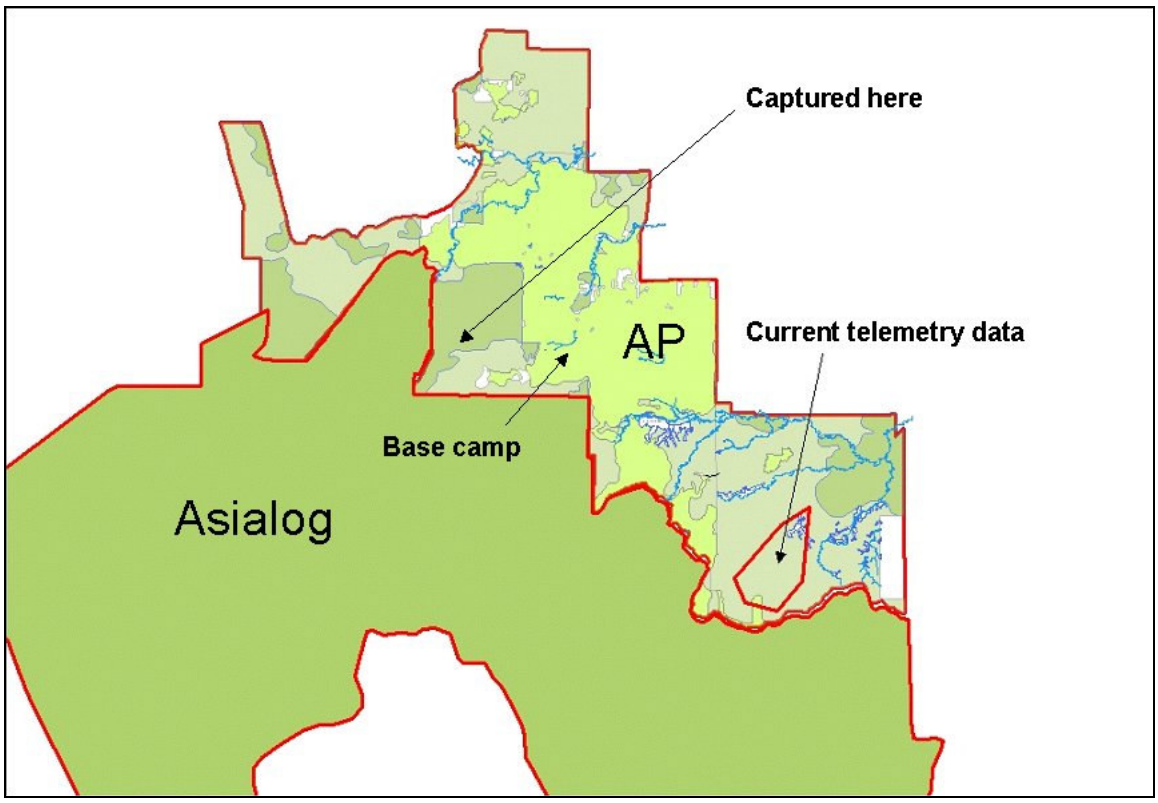

Figure 2 - Region of radio tracking fixes from radio collared tiger. Dark green represents forest, light green is oil palm and grey is scrub.

Objective 3: Tiger density

Tiger photographs account for about 2.5% of photographs taken from camera traps, although this figure includes all unexposed frames and accidental photographs, which Camtrakkers produce in large numbers. The proportion of actual photographs that contain tigers will be known when analysis is complete. Presently, the only calculations of the tiger population have been based on a simple identification of individuals. Once a full years data has been collected, more rigorous mark recapture analyses will be tested.

At the moment it is thought that there are up to ten independent adults using the oil palm concession and the bordering areas of forest. Four of these are resident, permanent adults (two males, two females) that regularly use land within the oil palm concession and account for the vast majority (79%) of tiger photographs (Table 1). The others form a mixture of dependent cubs from the resident females and rarely sighted independent adults who are suspected to be from previous litters. However, search effort has been restricted to the non palm plantation habitats (about 15000 ha) and only a small strip of the forest concession bordering these areas. It is therefore probable that several more exist deeper in the forest.

Table 1 - Composition of tiger photographs taken by camera traps

Tiger	Number of times photographed in last 2 years	% tiger photographs
Wendy	21	32%
Slamet	12	18%
Flash	11	17%
Tiga Jari	8	12%
Eve	4	6%
Mambo	3	5%
Unknown[1]	2	3%
Wendy cub A1	2	3%
Shakira	1	2%
Unidentified 1	1	2%
Unidentified 2	1	2%
Wendy cub A2	1	2%
Grand Total	65	100%

[1] Represents two photographs where the quality is too poor to ID them

Objective 4: Habitat use

For the same reasons as objective 2, quantitative data on habitat use are not available from radio tracking data yet. However, from fixes obtained so far it can be seen that the tiger is spending much of his time in within the plantation concession in a dense bamboo scrub habitat, but not in the oil palm habitat itself. He is also known to move into the forest regions to the north and south of the polygon, but it is in these areas that the signal disintegrates.

Objectives 5-7: Future recommendations

Recommendations for the future will not be made until the rest of the objectives are complete, although discussions are currently underway with the plantation to discuss the best area to be left unplanted, based on radio tracking data and camera trap data.

Objective 8: Strengthening the Indonesian conservation team

The conservation team at the plantation is now a fully operational unit able to undertake a scientifically robust monitoring programme in all non-palm areas within Asiatic Persada and a large proportion of Asialog. It consists of a collaboration between ZSL, Asiatic Persada, Asialog and the KSDA. The basis of monitoring is a network of over 170 km of mapped patrol transects. These patrol transects are a combination of scientifically conducted line and strip transects together with anti-poaching patrols. The transects cover all main and minor tracks within the area of interest as well as some river courses and animal trails. All transects are surveyed a minimum of once per month. Key areas are surveyed on foot a minimum of twice per month. Patrol transects are walked by a minimum of two and a maximum of four scouts with a patrol pack consisting of

datasheets, mammal track guide and a tape measure. During the transect data are collected on:

- Direct observations of all species of interest (recording species, number in group and perpendicular distance to the centre of the transect line.

- Animal footprints, faeces or other secondary sign (recording footprint measurements and collecting all carnivore and pig faeces for dietary analysis)

- Any signs of illegal activity (such as snares, bird trapping, forest clearance with the relevant authorities informed if necessary)

All data are collated weekly and entered into a central computer database by ZSL staff and will be analysed to provide basic information on species richness, tiger activity areas and signs of illegal activity.