

🐾 The Leopard Project 🐾



Annual Report 2014

January 2015



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Executive Summary:

The 2014 calendar year represented steady progress towards the eventual fulfillment of the Wilderness & Wildlife Conservation Trust's most recent major research project – habitat specific abundance surveys using a capture-recapture camera trapping framework. We were granted Department of Wildlife Conservation permits in September to conduct the necessary research in three locations that we had previously identified as priorities – Wilpattu National Park, Ritigala Strict Natural Reserve and Peak Wilderness Sanctuary – and we visited all of these study areas in the latter half of the year to conduct initial mapping and plan survey logistics. We finalized background research on remote cameras and purchased 16 new units (Scoutmaster SG565) during the second half of 2014 in preparation for the project.

In addition this year marked the inception of an exciting new project aimed at using non-invasive genetic analysis to investigate relationships and linkages between known leopard populations on the island. In constructive meetings with genetics experts at the University of Peradeniya we agreed a list of essential equipment as well as a plan to store and analyze leopard scat samples for this purpose.

As usual, WWCT also continued with our education and awareness drive, conducting two public lectures, four targeted awareness programs and one schools program almost all of which were located in the central highlands where human-leopard conflict appears to be most acute. The awareness programs were all in direct response to an alarming incident whereby it was reported that a woman was killed by a leopard in a forest reserve in the central hills. The result of this report, which is still under serious question, was a substantial increase in fear from various groups that have long lived in relative harmony with leopards.

Also on the education front, WWCT actively promoted our educational “*Wild Cats of Sri Lanka*” poster/pamphlet, which as anticipated, was very well received. Furthermore, we published two research articles after lengthy delays by the relevant journals and were the subject of three newspaper articles which garnered widespread circulation.

A student intern from the University of Peradeniya joined WWCT in August-September and proved a valuable and interested member of the team. He has subsequently been hired as a contract employee.

Finally, 2014 marked the year in which WWCT's Principal Investigator attained a Doctorate in Integrative Biology from the University of Guelph in Canada and returned to Sri Lanka full-time.

Update of Leopard Project activities - January to December 2014

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III. Acknowledgements

I. Research

A. Occupancy and Abundance Surveys

Following through from the research plan outlined in the 2014 budget and justification, the Wilderness & Wildlife Conservation Trust's (WWCT) Leopard Project secured government permits from the Department of Wildlife Conservation (DWC) in September 2014 for commencement of a wide-ranging occupancy and abundance survey project. Utilizing the same camera trap mark-recapture framework as the 2012 project in Horton Plains National Park (HPNP), this work signifies the continuation of our ambitious project to estimate leopard distribution and abundance across a variety of representative habitat types throughout the island. The goal of this work is to better understand regional patterns as well as allow for a more comprehensive understanding of leopard numbers in Sri Lanka. This type of baseline data is essential for relevant conservation planning at the national level and is considered a priority by the DWC.

To this end WWCT purchased 16 new Scoutmaster SGS565 digital remote cameras with incandescent flash, all of which were in-country by the end of December 2014. These cameras were selected for their excellent photo quality, light weight, ease of operation, economy and reliability and we are currently testing them in the field before the initial deployment in February 2015 to ensure that we can use them to their full capabilities for the abundance estimates.

A primary goal of the project is to assess leopard population parameters throughout the country and across habitat types. As such we have selected three representative locations for 2015-16 (Fig. 1).

i. Wilpattu National Park

The largest National Park in Sri Lanka at 131,693 hectares, Wilpattu is also one of the oldest (established in 1938) and most important. It is known for, and named after, the small circular lakes (“villus”) that dot the landscape and form important focal points for its abundant fauna. This park represents the lowland dry zone but also includes portions of arid zone (rainfall >1000 mm) in the coastal northwest. This area was well known for its leopard population prior to the civil war (1983 – 2009) but was essentially closed off during the entirety of the conflict and is only now starting to be visited by local and foreign tourists. In the 1960s the Smithsonian Institution out of Washington D.C. documented some aspects of leopard ecology in Wilpattu but no systematic survey has ever been conducted here.

Given its prominent role, both ecologically and culturally, in Sri Lanka, we are keen to implement surveys here. As such we conducted initial reconnaissance in June and a follow up investigation of the southeastern boundary area in July 2014 (Fig. 2), following from the interview survey of park personnel conducted in 2013. The park is well traversed with jeep tracks which will make leopard detection considerably easier (theoretically) than in the other two locations, but the size of the area to be covered means that we will need to carefully assess trap locations prior to the survey and quite possibly sub-divide the park into sectors. We currently plan to initiate the camera trapping survey in the 2015 dry season (May to September).

ii. Ritigala Strict Natural Reserve

Ritigala is one of three Strict Natural Reserves on the island (the others being Yala SNR in the southeast and Hakgala SNR in the central highlands) and represents a rather unusual combination of habitat types. Situated squarely in the lowland dryzone, Ritigala nevertheless also includes sub-montane vegetation structure on its highest slopes (~ 766m). As a result, this SNR is known for its unusual floral diversity including some plants that are only found here. Ritigala has long been associated with human settlement and was the site of an ancient monastery (~177-50 BC; Fig. 3), cave dwellings and later a British imperial sanatorium (1890).

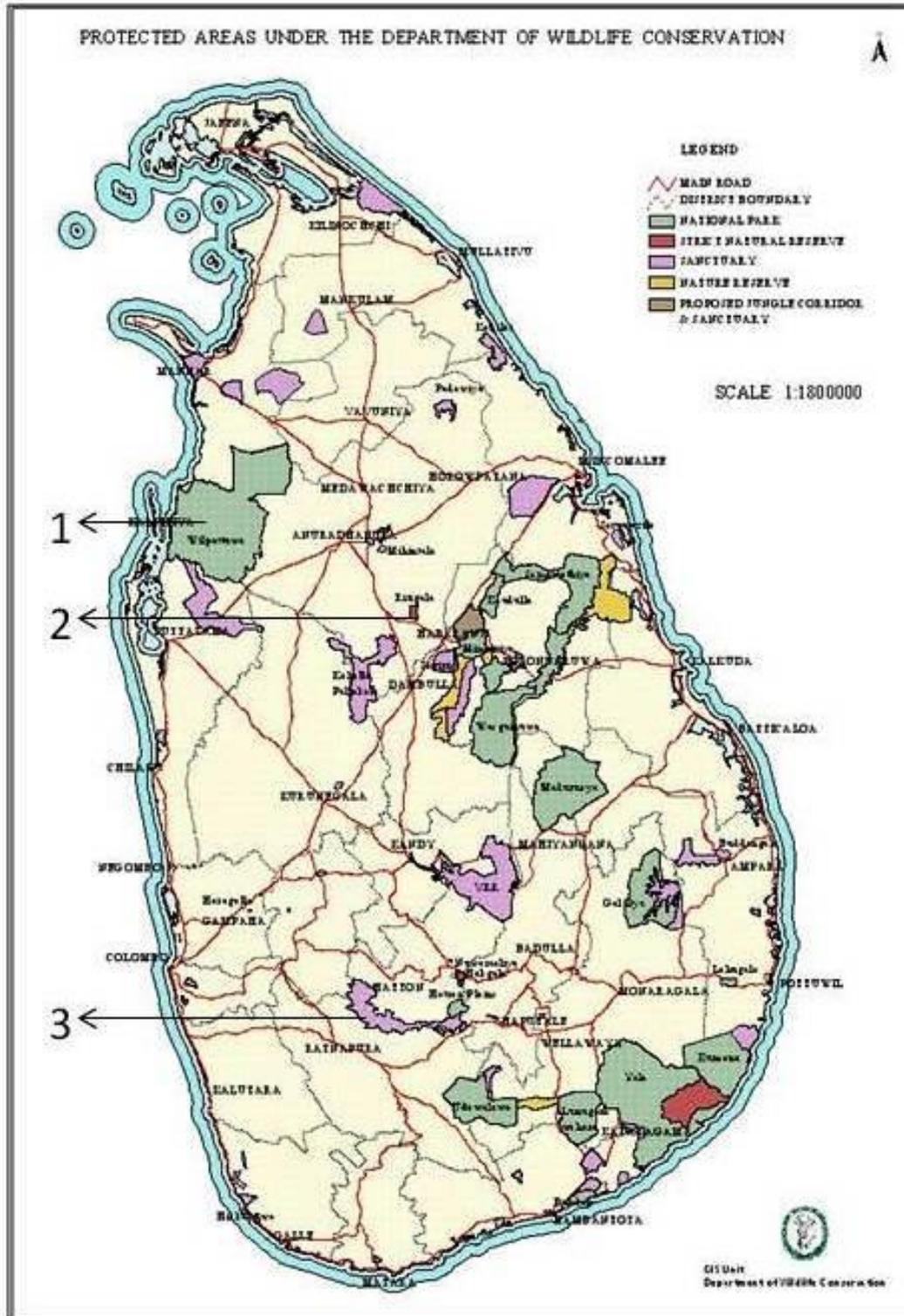


Fig. 1 Map of Sri Lanka showing the location of the 3 selected PAs for leopard occupancy and abundance surveys: 1 = Wilpattu National Park, 2 = Ritigala Strict Natural Reserve, and 3 = Peak Wilderness Sanctuary.



Fig. 2: Setting up camera traps on southeastern border of Wilpattu National Park.



Fig. 3: View over Ritigala SNR forest from ancient ruin.

The Leopard Project conducted three visits to Ritigala in 2014, the first two to meet with park staff and establish intentions and discuss logistics. This area is inhabited by wild elephants that range extensively in this human-dominated agricultural landscape and not infrequently come into conflict with villagers. As a result the elephants here are more dangerous than most other areas and armed guards are necessary when conducting field work in the surrounding forests. The first visit was conducted in August with a follow up in September, after permits were in hand and with both WWCT PIs. In the end of September we mapped the reserve boundaries and scouted potential camera trap locations. Ritigala SNR offers abundant challenges to camera trap surveys given the steep terrain (Fig. 4), non-existent trail network (Fig. 5) and potential danger; however its relatively small size (1530 hectares) makes it more feasible and we plan to conduct a closed-population survey here in February-March 2015.



Fig. 4: Dry wewa (water hole) on the eastern end of Ritigala SNR with Ritigala hills looming behind. WWCT and DWC field staff walking along the bund footpath.



Fig. 5: Left shows typical lowland open, monsoonal evergreen dryzone forest characteristic of Ritigala SNR. Right shows rocky uplands

iii. Peak Wilderness Sanctuary

The 22,380 hectare Peak Wilderness Sanctuary represents sub-montane and montane tropical rain and cloud forest (Figs. 6 & 7) and is the watershed for four of Sri Lanka's main rivers (the Mahaweli, Kalu, Kelani and Walawe). It is the largest contiguous swath of this type of habitat remaining on the island and is also the site of Sri Pada or Adam's Peak a 2,244 meter mountain that is considered sacred by all four of Sri Lanka's major religious groups (Buddhist, Hindu, Christian and Muslim).

In 2012 WWCT completed a camera trap survey of Horton Plains National Park (HPNP) which is also in the central highlands, located near the north-eastern edge of Peak Wilderness. HPNP is unusual in that it is home to a sizeable sambar deer population and is composed of open patna grasslands interspersed with sub- and montane forest. Peak Wilderness has no such open grasslands to attract deer herds and is thus expected to have lower overall prey availability. Given the dearth of data from most of the central highlands it is valuable to determine leopard abundance in Peak as this should provide a more representative hill country sample than HPNP.

WWCT visited the Maskeliya (northwestern entrance) side of the Sanctuary in November and met with DWC personnel to discuss survey logistics. We hiked around this region through forest (Fig. 8), along the well-used Sri Pada trail as well as through surrounding tea estates that border the forest (Fig. 9). There were encouraging signs of leopard presence as well as clear reminders of the challenges involved given few trails and steep terrain. Field visits to the other entrances to better map out the camera trapping locations are slated for early to mid-2015.



Fig. 6: View of Peak Wilderness Sanctuary looking south west from the summit of Sri Pada

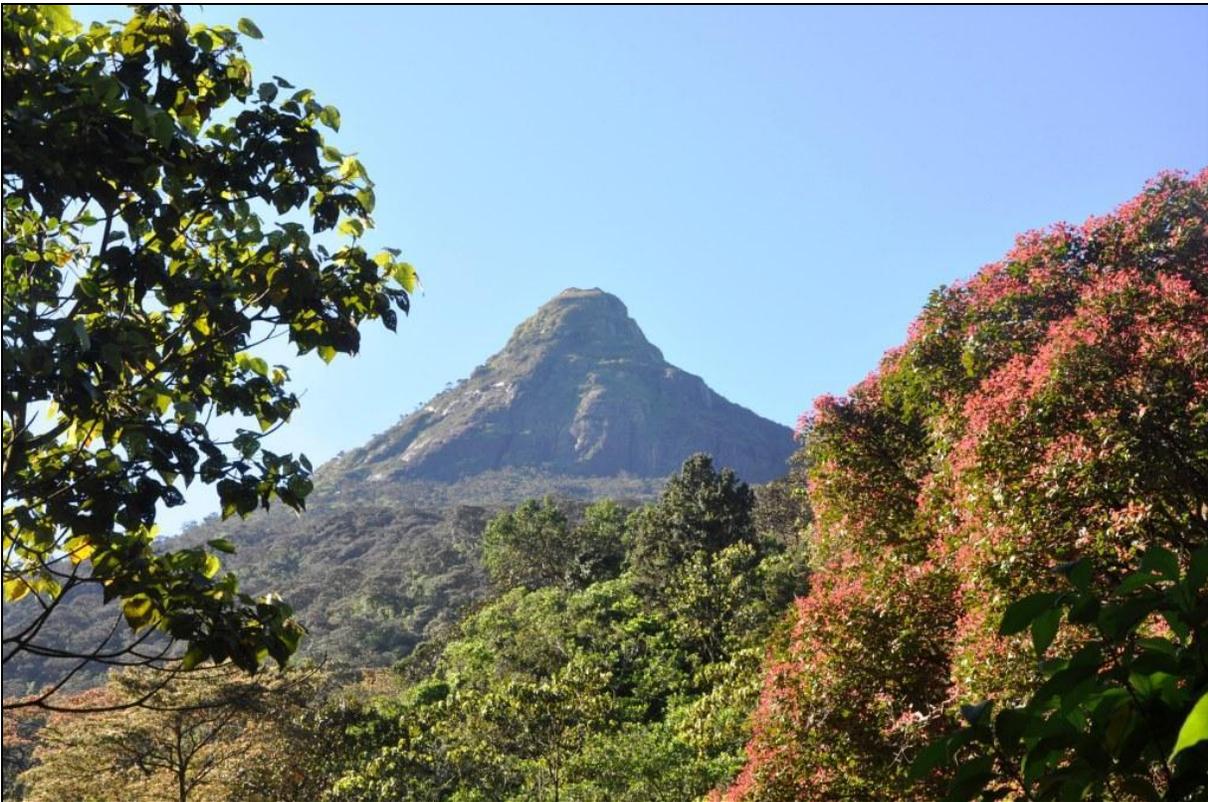


Fig. 7: The summit of Sri Pada with sub-montane forest in foreground.



Fig. 8: WWCT PI Andrew Kittle (l) and Outreach Officer Nimalka Sanjeewani (r) mapping potential trails in forested sections of Peak Wilderness Sanctuary.



Fig. 9: Tea estate lands bordering Peak Wilderness Sanctuary.

B. Leopard genetic diversity

In the end of October we met with Dr. Venura Herath from the University of Peradeniya in Kandy, Sri Lanka about launching a genetic study of the Sri Lankan leopard using non-invasive samples. The outcome of this discussion was very positive and subsequent communications have resulted in a list of necessary equipment for the purposes of investigating genetic diversity as well as linkages between potential sub-populations in the island. Currently there is no information regarding connections between lowland populations and those in the highlands, between southern rainforest populations and those in the arid and dry zones. This is a very important question as it speaks to conservation and management policy formulation. Procuring the necessary equipment and initiating this research will be a priority in 2015.

II. Education and Awareness

A. Presentations

i. Nature Conservancy (China)

In July, WWCT PIs met with representatives of the Chinese branch of the Nature Conservancy in Ulpotha near Anuradhapura in the North-Western province. This group was doing a tour of Sri Lanka and had contacted us to arrange a presentation about the Sri Lankan leopard as well as WWCT's research and conservation work. The Nature Conservancy group then came into the field with us to learn about camera trapping methods and equipment (Fig. 10).



Fig. 10: WWCT PIs meeting with Nature Conservancy (China) members

ii. University of Peradeniya – Biology Club

In October WWCT PIs gave a presentation about leopard ecology and conservation to the University of Peradeniya's Biology Club. This was well attended by ~50 senior students as well as several professors. We received considerable follow-up inquiries from students interested in gaining volunteer experience, some of which are currently being considered.

iii. Concerned groups in lieu of perceived leopard attack

On July 17 it was reported that a leopard had attacked and killed a woman at a forest reserve bordering a tea estate near Nawalapitiya in central Sri Lanka. The details of the case are unclear but it was suggested that the woman and a young man had entered the forest reserve to collect their cattle which were grazing illegally inside the reserve when they were attacked by a leopard. There is strong suspicion that this was actually a murder and not a leopard attack, but nonetheless the leopard attack story spread widely and quickly, resulting in panic and fear amongst many groups (e.g. tea estate workers) that have long co-existed with leopards without this sort of incident. In response to this upsurge in fear, which is known to result in increased persecution of the perceived threat (i.e. leopards), WWCT was requested to give presentations about leopard ecology and behaviour to a variety of concerned groups. Our conservation and outreach officer therefore conducted several well-received presentations.

a. August 2nd – Kahatuduwa tea estate, Rathnapura. Management of this tea estate requested an awareness program about leopards from DWC since a leopard was repeatedly seen in the vicinity and the Nawalapitiya incident had created fear in the minds of estate workers. DWC contacted WWCT to give the presentation in conjunction with them to 47 tea estate managers, workers and families (Fig. 11). The event unfolded as a discussion where WWCT presented on leopard ecology and behaviour, emphasizing that conflict was rare in Sri Lanka and unprovoked attacks on humans essentially absent. Attendees were then encouraged to relate their concerns and anecdotes after which DWC personnel provided some suggestions about being prepared when in areas where leopards are present (i.e. using torches, making noise). During the course of this discussion it was revealed that some villagers enter forest reserves illegally to harvest a native plant ("walapatta", *Gyrinops walla*) that is highly prized in the perfume industry due to the presence of agarwood resins. It was suggested that these illegal harvesters then spread rumours about leopard presence in order to keep others away from their activities. This has the added effect of putting them at greater risk and is a valuable piece of information as we continue to document mechanisms underlying human-leopard conflict in the country.



Fig. 11: Estate managers and workers at Rathnapura awareness program given by WWCT's Nimalka Sanjeevani and intern Dilum Wijenayake. Note Wild Cats of Sri Lanka pamphlets in use amidst the audience.

b. August 9th – Alagala, Ginigathena. Again, this was a request to DWC for similar reasons as described above. Again DWC contacted WWCT for the presentation which was given in the school hall (Fig. 12). Approximately 64 people were in attendance as there were grave concerns in the community about the possibility of leopard attacks. It is clear from some of these discussions that the leopard is being used as a scapegoat in certain situations such as one man who had assumed his cattle had been killed by a leopard only to find that they had been stolen by others. Attempting to sift the genuine cases of human-leopard conflict from spurious ones is a high priority given the negative repercussions that can arise when large carnivores are characterized as dangerous.



Fig. 12: Participants at awareness program at Alagala, Ginigathena.

c. September 28th - Upcot Estate, Maskeliya. Again, this awareness program was commenced in response to a request from management at a tea estate situated between Maskeliya and Norton in the central highlands. Approximately 20 participants gathered to hear the presentation (Fig. 13).



Fig. 13: Participants at awareness program at Upcot Estate. Right, DWC staff adding adding suggestion during the WWCT presentation.

d. September 29th – Hatton. This awareness program was given in response to a request from the Railway Worker’s Association from Hatton in the Central Province after staff members went on strike to protest unsafe working conditions. The cause of concern was a leopard that had been seen crossing the railway line one night when workers were conducting rail line maintenance. Again, this was a direct result of the new culture of fear instilled since the alleged attack in Nawalapitiya. The 65 railway workers who attended this program, presented in conjunction with DWC personnel, were appreciative of the information conveyed. It is a comment on the current state of the railway department that these individuals were provided only with an old, cumbersome oil lamp for their nighttime work (Fig. 14).



Fig. 14: Railway workers at Hatton listen to awareness presentation by WWCT’s Nimalka Sanjeevani. Right, a worker displays the oil lamp currently used to provide light during nighttime operations

e. November – Kirkoswald No 2 Tamil Vidyalayam, Bogawanthalawa. Around 165 students and staff at this estate school in the central highlands participated in learning about leopard ecology, behaviour and conservation (Fig. 15). Bogawanthalawa borders the Peak Wilderness Sanctuary and is an area where human-leopard interactions have occurred in the past.



Fig. 15: The school building (left) and students and teachers (foreground) listening to WWCT's leopard awareness presentation.

B. Wildlife research/conservation support

In 2014, five (5) leopards were caught in snares set for other animals by poachers. During one of these episodes in June the DWC chief veterinarian, Dr. Tharaka Prasad, was unable to initiate a rescue attempt due to falling darkness. The following morning the snared leopard was gone, only to be found dead later the same day. This brought to the attention of WWCT the lack of basic equipment for DWC veterinarians including high-powered light sources for use during nighttime operations. As requested by Dr. Prasad, WWCT then purchased and donated to DWC a 500,000 candle power hand held LED spotlight to reduce the chance of this type of incident re-occurring.

C. Student internship

In August, WWCT welcomed final year micro-biology undergraduate student Dilum Wijenayake from the University of Peradeniya for a one month internship. During his internship Dilum compiled a report detailing the background, requirements and feasibility of conducting a pilot genetics study of leopards in Sri Lanka. He also assisted with two awareness programs in the central hills and partook in the field reconnaissance of the Ritigala Strict Natural reserve (Fig. 16). Dilum was an energetic and diligent intern and has recently been hired to work for WWCT.



Fig. 16: WWCT intern Dilum Wijenayake (foreground) in Ritigala SNR with DWC rangers.

D. Wild cats of Sri Lanka poster/pamphlet

In February WWCT printed 500 copies of the trilingual Wild Cats of Sri Lanka poster/pamphlet that was designed and created in 2013. This small, attractive document has been very popular and we have disseminated it widely to DWC offices around the country as well as at education and awareness presentations. The purpose of this material is to help clarify the four cat species that exist in Sri Lanka, as currently there is much confusion as to how many there are and which is which. Feedback so far has been very positive.

E. Meetings

On June 3rd WWCT's PIs participated in IUCN Sri Lanka's Country Office Open House to welcome the new Country Representative Dr. Ananda Mallawatantri. During this event we contributed to round table meetings with local conservation organizations, University representatives, the new Country Representative as well as IUCN's Deputy Regional Director Programme for Asia Dr. T.P. Singh. The substance of the meeting was to discuss pressing conservation concerns and we were able to provide relevant input with regards to National leopard conservation.

F. Media

Sunday Times – Sunday, July 13th “For the love of the leopard” <http://www.sundaytimes.lk/140713/plus/for-the-love-of-the-leopard-106567.html>

Sunday Times – Sunday, July 20th “Tracking the leopard in the North” <http://www.sundaytimes.lk/140720/plus/tracking-the-leopard-in-the-north-107370.html>

Ceylon Today – August 10th, “A safer home for leopards” <http://ceylontoday.lk/64-69999-news-detail-a-safer-home-for-leopards.html>

G. Publications

Kittle, A.M., Watson, A.C. and Kumara, P.H.C. 2014. Baseline wildlife surveys of Northern Sri Lanka. *Loris*, **56(5&6)**: 30-32.

Kittle, A.M., Watson, A.C., Kumara, P.H.C., Sandanayake, S.D.K., Sanjeevani, H.K.N. and Fernando, T.S.P. 2014. Notes on the diet and habitat selection of the Sri Lankan leopard *Panthera pardus kotiya* (Mammalia: Felidae) in the central highlands of Sri Lanka. *Journal of Threatened Taxa* **6(9)**: 6214-6221

III: Acknowledgements:

All WWCT work within Sri Lanka is with the permission of the Department of Wildlife Conservation (DWC) and the Forest Department (FD).

Principal funding has been provided by CERZA Conservation with additional funding from private donations.

