

Darwin Initiative: Half Year Report

(due 31 October 2007)

Project Ref. No.	15-026
Project Title	Bornean Wild Cat and Clouded Leopard Project
Country(ies)	Malaysia
UK Organisation	Global Canopy Programme
Collaborator(s)	Professor Maryati, Universiti Malaysia, Sabah
Project Leader	Katherine Secoy
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Report No. (HYR 1/2/3/4)	HYR 2
Project website	Project highlighted on GCP website www.globalcanopy.org

1. Outline progress over the last 6 months (April – September) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up).

Camera trapping: Camera based fieldwork is in-line with agreed schedule. Over the last 6 months we have progressed from initial scoping camera surveys and have now completed a capture-recapture survey of clouded leopards in the selectively logged forest at Danum Valley, which has resulted in the first scientifically robust density estimate for the Bornean clouded leopard. Camera surveys have also provided novel data regarding the relative abundance, activity patterns and habitat use of three other Bornean felid species. Preparations are now being made for a clouded leopard capture-recapture survey in the primary forest at Danum Valley. Our camera trapping efforts continue to provide unique photographs of Bornean wildlife and have to date accumulated 11,684 images. This includes 210 photos of the Bornean clouded leopard in which 14 individuals can be identified, 757 photos of the leopard cat, and 19 photos of marbled cats, including potentially the first ever images of a mother and cub. In addition, the accumulation of 7 photographs of the extremely rare bay cat (accounting for over 60% of all wild-photographs of this species), and the first ever video footage of the bay cat, caught by video camera-trap, is particularly noteworthy. See appendix I for a selection of images.

Live trapping: The live trapping component was scheduled to begin in January, however, due to unforeseen problems discussed below, this is yet to begin in earnest. Trapping on a small scale in collaboration with Malaysian researcher Wong Siew Te continues. To date we are yet to live trap any wild cats.

Educational materials: The initial posters were produced ahead of schedule. A visually improved bilingual poster, now written in English and Malay, has been designed and will shortly be displayed at the Borneo Rainforest Lodge and the Danum Valley Field Centre. We are currently liaising with an NGO, The Clouded Leopard Project, based at Point Defiance Zoo, to determine if some collaboration regarding educational activities will be possible. This collaboration is yet to be formalised, but it may take the form of the dissemination of materials already proved effective by The Clouded Leopard Project in Thailand, for example, an educational story book could be distributed to local schools near Tabin Wildlife Reserve.

Training course: The training courses were scheduled for February 2007, however June was more appropriate for our collaborators, the Universiti Malaysia Sabah, due to changes in their academic timetable, and therefore the first two training courses were successfully completed in June 2007. Through these training courses 30 undergraduate students, two postgraduate students and one lecturer received training, which exceeds the 20 participants we agreed to train by this period. ITBC have decided to permanently adopt this course onto their BSc Conservation Biology syllabus, and we are working with them to see how this can be best achieved. See appendix II for a selection of images.

Conference/IUCN workshop: As agreed, the principal investigators, our host-country trainee/counterpart, Daniel Pamin, and scientific advisor, Prof. David Macdonald presented a poster entitled "Felid abundance, activity and habitat use in a tropical forest in Sabah, Malaysian Borneo" at the International Felid Biology and Conservation Conference, held at the University of Oxford, September 17th-20th. This conference was the first truly international felid conference ever held, bringing together 300 of the World's felid biologists, and thus provided an excellent opportunity to raise awareness of our project and to strengthen relationships with other biologists working on similar projects. The conference also enabled a meeting with our specialist advisor, Dr. Jim Sanderson who is pleased with

the scientific progress of the project. In addition, both principle researchers attended an IUCN cat specialist group workshop where our preliminary findings provided the foundation for the reassessment of the conservation status of the five felid species found on Borneo and the subsequent reclassification (awaiting final evaluation for IUCN Red list 2008) of the flat headed cat and the Bornean sub species of clouded leopard (both previously classified as Vulnerable, now Endangered).

2. Give details of any notable problems or unexpected developments that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

Further meetings and discussions with Tabin Wildlife Reserve (TWR) based NGO, SOS Rhino, have revealed that equipment theft from TWR is likely to be a significant problem. The loss of camera traps at this stage of the project would impact severely on the research. In addition, it has become apparent that the cats, with the exception of the leopard cat, all have a very low photo-capture probability and therefore research is more efficient with all cameras operating at any given location. Thus, contrary to our original agreed timetable, we have not started camera surveys at TWR, but have instead focused all efforts at Danum. We intend to work closely with SOS Rhino, who have an ongoing community outreach programme with the communities surrounding TWR, to gain local support for our work and potentially reduce the threat of camera theft. We are currently working to raise additional funds for extra/replacement camera traps; however, it is prudent to have research more complete at Danum before cameras are relocated to TWR. We have proposed that camera trapping at Tabin will now begin during April 2008 rather than October 2006; with a greater density of camera traps research will be more efficient and results more meaningful. There are no budgetary implications with these changes

It has become clear that the hunting survey is a very sensitive issue with the Sabah Wildlife Department (who are instrumental in the designation of our research permits) and as such we are approaching this with caution. The survey has been re-labelled as a conservation awareness survey, to take the emphasis away from the hunting element and we will continue to work with the wildlife department on this issue. We have proposed that this survey will now be conducted in May 2008 and May 2009. The budgetary implications of this change are to move £195 from financial year 2008/2009 to financial year 2009/2010.

The drugs required for the chemical immobilisation of animals are controlled substances in Malaysia, and a licence is needed to carry and use these substances. This licence needs to be issued by a Government vet. The process to obtain this licence is underway for both principle researchers; however, this is taking significantly longer than anticipated. Nevertheless, the process is proceeding well and a recent meeting with the Chief SWD vet was encouraging and he indicated his support for the project. We anticipate that the licences will be issued by November 2007, so allowing intensive live trapping to begin. In the meantime we continue to live trap on a smaller scale, under Wong Siew Te's licence. This delay will result in fewer trap nights than previously planned and may potentially reduce the number of wild cats collared. However, application of the excellent wild cat spatial ecology and habitat use data, derived from our camera trapping efforts over this period, will enable a more informed choice of live trap location and thus increase live-capture probability when compared to more random placement, as would have been the case had trapping begun earlier. Increased capture efficacy will help mitigate the effects of a reduction in the live-trapping period and we therefore believe that any impacts to the project should be minimal. There are no budgetary issues with this delay.

Have any of these issues been discussed with the Darwin Secretariat and if so, have changes been made to the original agreement? All issues have been discussed with the Darwin Secretariat and all proposed changes have been approved

Discussed with the DI Secretariat: no/yes, in...October 2007..... (month/yr)

Changes to the project schedule/workplan: no/yes, in... October 2007.....(month/yr)

3. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

The project has been highlighted and promoted in several different ways over the past 6 months. An article on the project was published in the Sunday Telegraph, July 2007 (Appendix III). A television interview was conducted during July 2007 for Radio Television Malaysia, as part of a wider piece on Danum Valley. A poster promoting the project was prepared for display at the Universiti Malaysia Sabah for the visit of the Malaysian Minister for higher education in June 2007. In all occasions the Darwin Initiative was acknowledged.

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document.

Response to comments In 2006-2007 Annual Review

The purpose of the project, that the Bornean wild cats will be better protected, is a particularly difficult outcome to evaluate and monitor the progress towards. An enhanced knowledge base regarding the habitat requirements of the Bornean felids will enable the Sabah Wildlife Department to be informed accordingly and so consequently produce improved management plans specifically targeted for the wild cats.

The Danum Valley Conservation Area currently has no legal protection; it is maintained and managed for wildlife conservation due mainly to the goodwill of Yayasan Sabah, who are the body that own the Conservation Area and the surrounding timber concession. In order to maintain the protection of this area, research is required to show its importance for wildlife conservation. Research proving that this area supports many different mammal species, especially top predators such as the clouded leopard will ensure its continued protection and therefore also the continued protection of the mammals it supports.

An increase in awareness of the Bornean felids and current threats within Sabah, especially amongst the students of the BSc. conservation biology course at Universiti Malaysia Sabah, will increase the desire to ensure that these cats and their habitat are protected. It is these students who are most likely to take positions within the Sabah Wildlife Department and therefore influencing the next generation of decision makers is particularly important. Feedback from the training course regarding awareness and any change in attitude towards the protection of the wild cats is also a potential indicator that should be monitored.

Appendix I Examples of camera trapping photographs



Figure 1. The rarely seen Bornean clouded leopard, pictured here is Male 1



Figure 2. Clouded leopard Male 1. Using the cameras as pairs allows both sides of the animal to be identified



Figure 3. Clouded leopard Male 2. When compared with figure 2, the individual variation in coat patterns can be clearly seen.



Figure 4. Leopard cat, the least threatened of Borneo's wild cats



Figure 5. The elusive and rarely photographed marbled cat



Figure 6. The first known photograph of a female marbled cat with her cub



Figure 7. The extremely rare bay cat



Figure 8. Female red muntjac, potential clouded leopard prey



© Andrew Hearn & Joanna Ross

Figure 9. The banded palm civet



© Andrew Hearn & Joanna Ross

Figure 10. The seldom seen binturong



Figure 11. The extremely rare and seldom photographed otter civet



Figure 12. A common palm civet



Figure 13. Male and female yellow throated martens



Figure 14. Female sun bear with cub following behind

Appendix II. Photographs from the first and second training courses held at Danum Valley



Figure 1. Andrew Hearn giving a lecture on radio tracking



Figure 2. Students on the second training course attempt to determine the position of a hidden radio collar



Figure 3. Lecturer from the Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah, Miss Azniza and two students attempt to locate a radio collared sun bear, taking advantage of the height of a tower to obtain a stronger signal



Figure 4. Andrew Hearn demonstrates how to plot the bearing of a radio location on a map



Figure 5. Our host country co-ordinator Dr. Henry Bernard and student attempt to determine the position of a radio-collared sun bear



Figure 6. Joanna Ross assists two students to locate a radio-collared sun bear



Figure 7. Students from the first training course ensure that all undergrowth is cleared from a camera trap site



Figure 8. Students from the second training course choose a location and position a camera trap in the primary forest at Danum Valley



Figure 9. Our host country counterpart/trainee, Daniel Pamin giving a talk on conservation genetics to students on the first training course



Figure 10. Our host country co-ordinator, Dr. Henry Bernard and Joanna Ross brief the students from the first training course prior to the setting of small mammal traps in the primary forest at Danum Valley



Figure 11. Malaysian researcher Wong Siew Te demonstrates the use of a large mammal trap, designed to trap bearded pigs



Figure 12. Students use a guide to Bornean mammal footprints, produced specifically for the training course, to identify mammal prints found near the river at Danum Valley



Figure 13. Students who attended the first training course



Figure 14. Students who attended the second training course

Borneo free

The ethereally beautiful wild cats of the dense Bornean jungle are rarely glimpsed, never studied. Now a young British couple have determined to save these elusive species and their fragile habitat – but first they have to find them... **Jonny Beardsall** joins the search. Photographs by **Emily Mott**

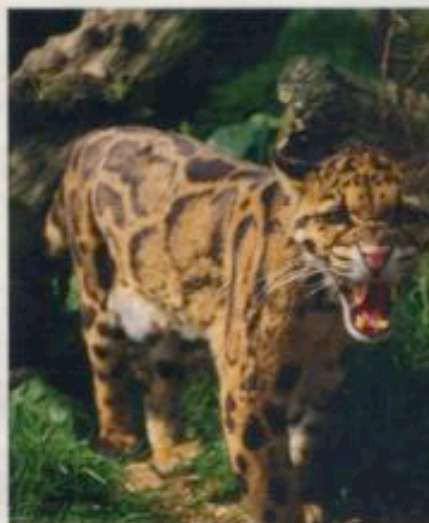


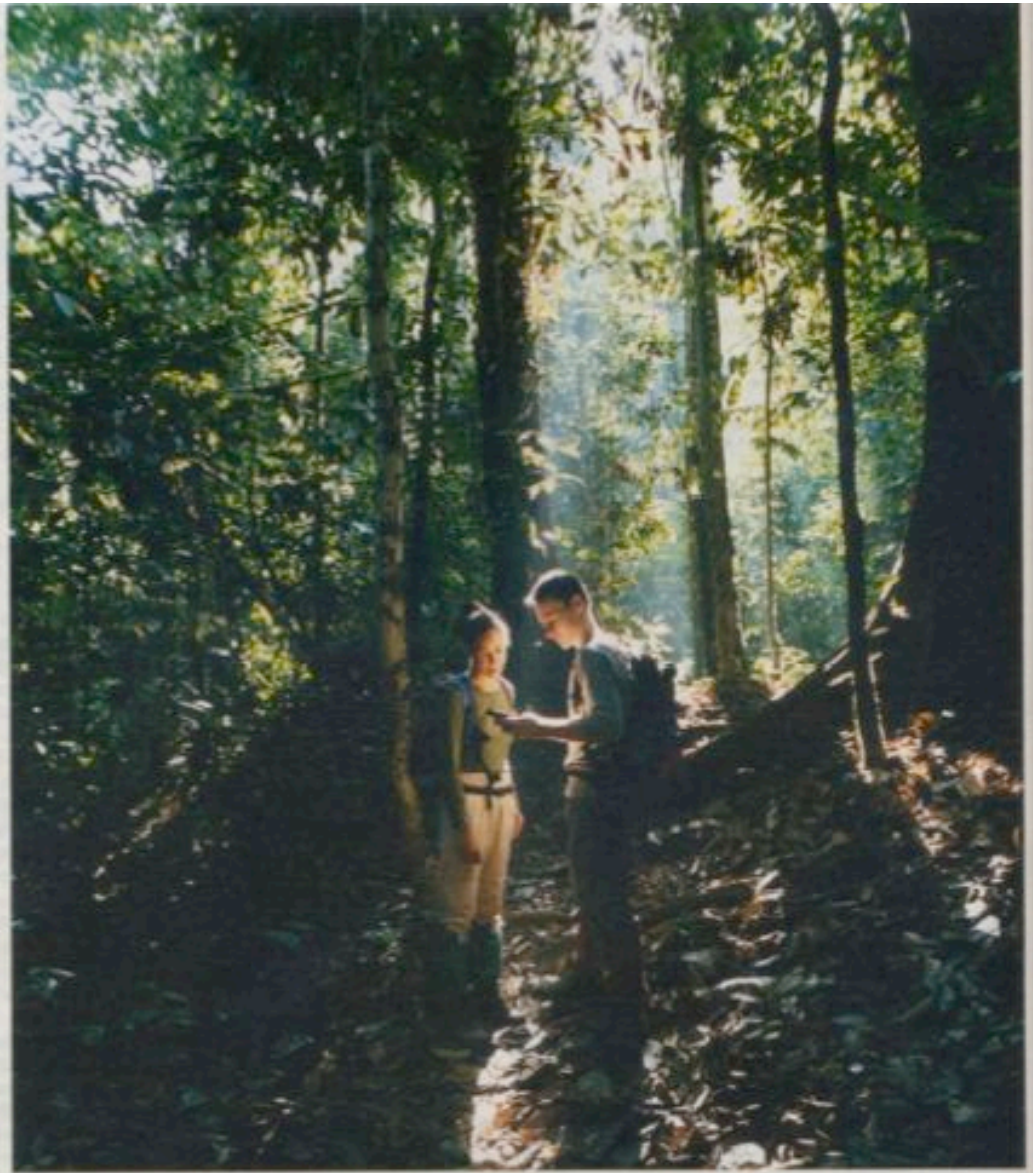
In the jungle, huge, fresh dung on a track isn't funny. The perpetrator was plainly an elephant, and research scientists Joanna Ross and Andrew Hearn are on their guard. You might think it impossible for an elephant to melt out of sight, but here it's hard to see far: everything is green, and only one per cent of sunlight reaches the forest floor. The elephant may be watching our every move – a potential trampling hazard in this most unregulated of workplaces. No one is sure how elephants came to live here, in Sabah on the island of Borneo. Rumour insists they were a gift centuries ago to a sultan who released them into the wild when he tired of them. Now, Ross keeps watch while Hearn downloads images from a camera-trap, cunningly camouflaged and bunged to a tree, which photographs anything passing by. He snaps the camera closed and we depart silently.

It's not elephants, however, but cats that have brought Joanna Ross and Andrew Hearn (both in their thirties) to Borneo. They are leading the Bornean Wild Cat and Clouded Leopard Project – a collaboration between the Oxford-based Global

Canopy Programme (GCP) and the University of Malaysia – surveying the island's five wild cats: the flat-headed cat, marbled cat, leopard cat, bay cat and the enigmatic clouded leopard. Borneo's cats are never big; the wild species are similar to our domestic cats in body form, distinguished by size, tail length and colour. The clouded leopard made headlines this spring when the World Wildlife Fund announced it as a new species; it is the largest, and most ravishing, of the cats, measuring 5ft or more from the nose to the tip of the tail and varying in hue from pale sandy brown to very dark, with cloud-like markings on the sides of the body. Similar to the clouded leopard but much smaller, the marbled cat is brownish with black markings, while the bay cat, whose habitat remains a mystery, is reddish or dark grey; the flat-headed cat, which is a swimmer feeding mainly on fish, is brownish with a fine grey and pale-buff speckling and a long tail; and the leopard cat, the most common, is reddish or yellowy buff with black spots.

Hearn and Ross are six months into a three-year study. 'The question we're asking is how big an





LIFE IN THE JUNGLE SEEMS A MILLION MILES AWAY FROM THEIR FRIENDS, WHO ARE ALL GETTING MARRIED AND PAYING OFF MORTGAGES

Clockwise from left the clouded leopard, recently identified as a separate species; a rope bridge across the Segama river near where the wild-cat project is based; Joanna Ross and Andrew Hearn use GPS to find their way in the jungle

area of forest the cats need to do well,' Ross explains. 'So far, numbers have only been guessed at,' Hearn adds. 'We're interested in how they need to be protected and how logging affects them. If their prey species is there, they will be there too, but logging roads bring hunters who shoot both cats and their prey.' The eventual answers to these questions will have implications for forest management, and Hearn and Ross will be able to make recommendations to the Malaysian government.

Previous research suggests that, in the case of orang-utans, if logging continues at the current rate, the species is doomed. If this is so, where does that leave cats? 'We simply don't know,' Ross says. 'We don't have the evidence yet, but, arguably, cats are in a better position than the apes. People have studied apes for 40 years, and numbers have gone down, but with cats we just don't know. We hope to have some results soon.'

Hearn and Ross have been living and working together since they met at Manchester University, in 2000, while studying for master's degrees in conservation biology. Hearn grew up in Newbury, Berkshire, where his father is a heating engineer and a part-time gamekeeper; Ross comes from Edinburgh and became interested in rainforests after reading about them one lunchtime in the school library. 'I remember being blown away and thinking, I want to get to a rainforest,' she says.

In Borneo, the couple are based on the banks of the Segama river in the eastern half of the state, where most of Sabah's last pristine tracts of primary lowland dipterocarp forest is found. They operate from the Danum Valley Field Centre, one of the foremost research and environmental education bases in south-east Asia. The Danum Valley lies in a 100,000-acre conservation area, part of a 250,000-acre forestry concession run by the Sabah Foundation, which also manages timber and oil-palm plantations, community forestry programmes, eco-tourism sites and two of the region's largest forest rehabilitation projects, as well as funding the

research centre and welfare, education and conservation initiatives in the state.

The centre draws boffins from all over the world: bearded latter-day Dr Livingstones with mosquito nets fitted to their hats, and women in khaki 'leech socks' that keep those looping, undulating blood-suckers at bay. It is a sweaty place; temperatures range between 32C in the day and 22C at night all year round. Few bases compare with Datusan for tropical research. 'Our work involves the use of remote cameras, live-trapping and radio-tracking,' Ross says. 'The roads here give us excellent access when we start dashing about with antennae, tracking animals with collars.'

Cats first caught the attention of Hearn and Ross in 2003. They were working together in Kalimantan (Indonesian Borneo), jointly leading an orang-utan survey, and they were down on their luck. 'We were in the middle of nowhere. Instead of finding apes, we found forests trashed by illegal logging,' Hearn says. 'That was until the headman at a village found us a guide, who just happened to be an illegal logger. He took us under his wing. He led us deeper into the forest to a really destroyed area where, strangely, we saw loads of animals... everything from orang-utans to civets - it was incredible. A few days later I walked into the same

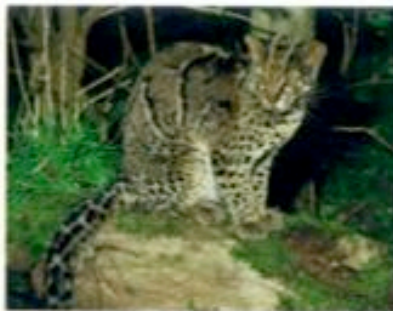
'WE WERE MILES FROM ANYWHERE. I WALKED INTO THE FOREST AND THERE, COMING TOWARDS ME, WAS WHAT I NOW KNOW WAS A BAY CAT. I DIDN'T KNOW WHAT IT WAS. I WASN'T UP ON CATS'

forest and there, coming towards me, was what we now know is a bay cat. It walked straight past me. I didn't know what it was. I wasn't up on cats but I watched it for 30 seconds.' Afterwards he sketched what he had seen and showed it to colleagues back at the main base. He learnt that an American cat specialist, Dr Jim Sanderson, had been looking for bay cats for 10 years and had never seen one in the wild. He was leaving that day, so Hearn sprinted to his hotel at 7am, where Sanderson - who has since become an adviser to their project - told him how little was known about these cats, or any of Borneo's cats for that matter.

This was the catalyst. Hearn and Ross then returned to the UK to canvass for research funds. 'We thought we'd begin with a small study to look at the distribution of these cats and needed £20,000-30,000 to get us out here for six months to a year.' They had had a conversation in Kalimantan with Rupert Ridgway, an eccentric English conservationist who runs the field centre in the jungle there. He had urged them to contact Andrew Mitchell, the chief executive and founder of the GCP. 'I e-mailed him,' Hearn says, 'but heard nothing until, a year to the day after I'd first tried him, he replied. He would help us frame a project incorporating the training of local scientists.'

Steered by Mitchell, the pair approached the Darwin Initiative - a UK government grant scheme that protects biodiversity and sustainable resources in less developed countries - for top-level funding, and pulled off a coup. 'In our line of work, it's good money - in total we got £280,000 from Darwin and from our co-backers, Wild About Cats, while the GCP helped in kind. We're on about £9,000 a year each and, hey, we've nothing to spend it on,' Ross says happily.

Their project is taking place at a crucial time. With the continuing international awareness of depleting world forests, Malaysia is under pressure to decelerate logging in Borneo. Timber is a major export, and logged forest is turned over to oil-palm



From top: a male marbled cat, the smallest species; an unidentified new species of Bornean cat photographed in Kalimantan; a rare sighting of the mysterious bay cat; the more common leopard cat

plantations, causing cats and other species to become vulnerable, if not endangered. Unless more of what remains of the primary forests is set aside as national park or forest reserves, habitats will continue to degrade, and biodiversity will be lost.

Hearn and Ross's home in the jungle, which they share with rats, mice, snakes, termites and geckos, is a colonial-style bungalow above the river and next to the station. From the outside, steps lead to



an open veranda painted battleship grey and arranged with bamboo chairs. Double doors open into a central wood-floored sitting-room where an electric ceiling fan keeps the sweltering air moving. A well-thumbed copy of *A Field Guide to the Mammals of Borneo* rests on a bowl of langsat (a tiny round fruit with a leathery brown skin and a delicate, sweet flavour), and camera-trap images of bay cats - the first ever from Sabah - are pinned on a wall alongside others showing a startled argus pheasant, a bearded pig, a pigtail macaque and the front leg of an elephant.

Steps descend to a kitchen. Hearn points to a hole by the sink, where a snake came in. 'I walked in just as it was slithering across the drainer. It was a grey-tailed racer, not a lethal one but it was biggish. I coaxed it into a cardboard box and let it go outside,' he says. 'In Kalimantan we lived in tents and were soon gaunt and horrible. Here we have proper showers and a kitchen and electricity till midnight,' Ross says. 'We even have a washing machine, except it has just broken,' Hearn adds.

These are five-star field conditions, though the day they arrived, they were met with an 'awful stench of plague and pestilence', Hearn says. 'A bearded pig had died outside our window and its swollen belly had been split open by a gift monitor lizard, which took three days to eat it.' It's a life that seems a million miles from those of their friends, who 'are all getting married and paying off mortgages'.

Very soon Ross and Hearn will begin live-trapping the cats. When a cat walks into a baited steel-mesh box-trap and steps on a treadle inside, the door will slam behind it. Soon afterwards, the scientists will reappear, shove the cat to the back of the cage with a wooden plunger and anaesthetise it with an intramuscular injection. This gives them 30 minutes to work on the cat; they sex, weigh and measure it and fit a radio-collar, take hair and blood samples then wait until it has fully come round and looks happy before letting it go. Then they can track the cats on foot with receivers to help them understand their habitat preferences.

They can't wait to start. 'We've only seen cats in the car headlights on the road - never close-up in the jungle - so we're really looking forward to this,' Hearn says. 'So far, we've 20 clouded leopard camera-trap images - we think there are four individuals - and we've five marbled cats and 30 leopard cats, so we ought to catch something.'

It is too soon to draw conclusions, but Hearn and Ross are optimistic that in two and a half years they will have enough evidence to persuade this country to find a way to keep what is left of its last primary forests. 'Here, logging isn't a dark secret,' Hearn says. 'We will be able to tell the Malaysian government what the cats' habitat requirements are and how we can minimise the impact of logging. So far, we know that cats do still exist in lightly logged forests.'

Ross agrees. 'If they maintain continuous large blocks of forest - and don't remove too much timber from them - and keep corridors of forest linking these blocks, then, perhaps, the cats have a better chance. But if forest blocks become too small, populations may become too isolated and their genetics may suffer.' Cats, they both think, may fare better than other species, but to conserve them you must understand them. 'At the moment, we don't,' Hearn adds. 'Far from it.'

Bornean Wild Cat and Clouded Leopard Project: globalcatnats.org