# DARWIN NEWS

Issue 15
August 2009

Newsletter of the UK Darwin Initiative

Promoting biodiversity conservation and the sustainable use of resources • http://darwin.defra.gov.uk


Welcome to the summer issue of the Darwin newsletter. The 10th of July saw the call go out for the next round of the Darwin funding and as you will notice there is an increased emphasis on the UK's overseas territories. The Wildlife Minister ,Huw Irranca-Davies, announced the funding in early June saying 'I am very pleased to announce that, when I bring forward the new round of Darwin funding, I shall also announce that Round 17 will see potentially over one-and-a-half million pounds being earmarked for Darwin Projects in the Overseas Territories. Please visit the Darwin website (http://darwin.defra.gov.uk) for full details about the call.

Since April we have seen the successful start up of many new Darwin projects with 25 new scoping awards and 4 fellowships announced since our last issue. Also since our last issue we hosted the New Project Leaders workshop in London on May 21st. Many thanks to those who provided feedback on the event as we wish, as much as possible, to ensure that these events are fully tailored to the needs of those attending. Proceedings of this workshop are now on the Darwin website http://darwin.defra.gov.uk/workshop/.

A new briefing note has been launched in the last quarter looking at the evolution of the Darwin Initiative in celebration of our namesake, Charles Darwin. Using the same concept for this newsletter we will be looking at the evolving practices of conservation and how these can often require us to approach biodiversity conservation in new and innovative ways.

Many of you will also be aware that May saw the call go out for new Darwin Advisory Committee members. The Darwin Initiative is looking for up to 6 new members for the Darwin Advisory Committee which advises the Secretary of State for Environment, Food and Rural Affairs on the principles and aims of the Darwin Initiative Grant programme and on the selection of projects for funding. The closing date for this announcement was 22nd June so we will keep you informed as and when new members of the Committee are announced.

Helen Beech has moved on to pursue a career in Art Therapy so the financial administration of Darwin projects been transferred to Ruth Palmer…more on Ruth in the next issue of the newsletter. Stephanie Godliman has now taken over the role in the Darwin Secretariat previously covered by Sarah Nelson….see article on p9 for more


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Full contact details for the Darwin Secretariat and the Darwin Initiative Programme are available on the Darwin website (http://darwin.defra.gov.uk)


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# Conserving Orchid Biodiversity in the 21st Century

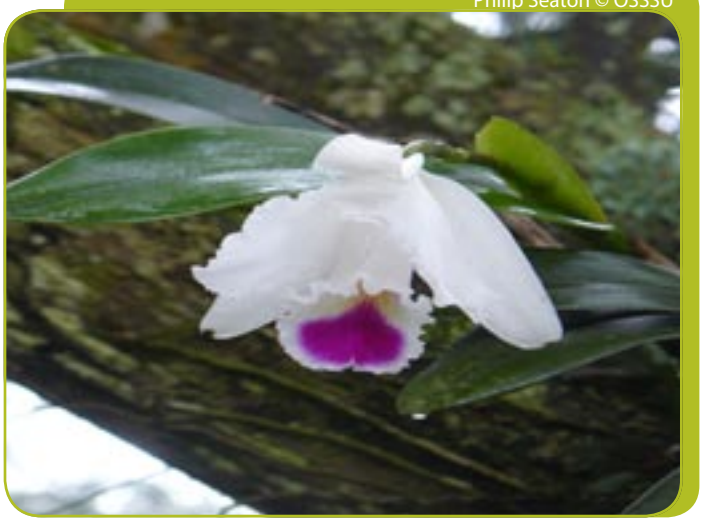
Project ref: 16-012
Hugh Pritchard & Philip Seaton
RBG Kew

Containing an estimated 25,000 species, members of the Orchidaceae make up around ten per cent of the world's flowering plants! With many orchid species around the globe facing an uncertain future in their natural habitats, due variously to habitat destruction, climate change and continued over-collection for horticulture and traditional medicines, ex situ conservation techniques in general, and seed banking in particular, have a vital role to play in orchid conservation for future generations. Their seeds are tiny: literally millions of dry seeds can be stored in a small space. Thus orchid seed banking as a conservation tool is a particularly attractive option.

Orchid Seed Stores for Sustainable Use (OSSSU) has built up a network of orchid specialists in 14 countries in Latin America and Asia. Participating countries were selected either for the megadiversity of their tropical orchids, or for their rich temperate orchid floras (China and Chile). Workshops were held at the outset of the project in late 2007 in Quito, Ecuador, and Chengdu, China, to develop common protocols for storage and in vitro germination and, amongst a range of issues, to enable participants to exchange ideas and information on pollination

Philip Seaton © OSSSU

Philip Seaton © OSSSU



methods used in ex situ collections and aseptic seed sowing techniques. This, together with other data on orchid seed biology (such as seed capsule ripening times, seeds per capsule, germination and storability) is being developed into a valuable resource for orchid seed biotechnologists, and will be made available on the OSSSU web site. In many ways we are walking in Darwin's footsteps (Letter 4003 – Darwin. C.R. to Scott, John (Feb 1863)).

Seedlings generated as a result of germination testing are being used to enrich existing living collections. In Cali, Colombia, seedlings of Cattleya quadricolor from the project will be used to repopulate areas where this beautiful species was previously found, and to plant street trees within Cali itself. Likewise, seed-raised material of *Dendrobium officinale* can be used to reduce its wild harvest for use as a traditional medicine in China.

OSSSU continues its dissemination policy, enabling publication of popular and scientific articles, plus training materials (being made available in Spanish and Chinese), and supporting a broad range of cascade training (public, student, professional) in the participating institutes. This year orchid specialist and Project Manager, Phil Seaton, has been invited to promote OSSSU at the 3rd Andean Scientific Orchid Conference in Ecuador, and the 1st Guangxi International Orchid Sympo-

sium, in China. These efforts have prompted numerous requests from across the world's orchid community to join OSSSU, and we are now accepting associate members as part of the network.

The enthusiasm of the participants in OSSSU has enabled us to raise the project expectations in terms of targets. The initial objective of working on 250 orchid species will be achieved, and our aim now is to build towards linking with around 30 countries so that from 2010 onwards 1000 species can be studied. In time the data from the project will enable the development of precise guidelines on orchid seed storage for sustainable use taking into account the species' unique features.

http://www.darwinproject.ac.uk/darwinletters/calendar/entry-4003.html

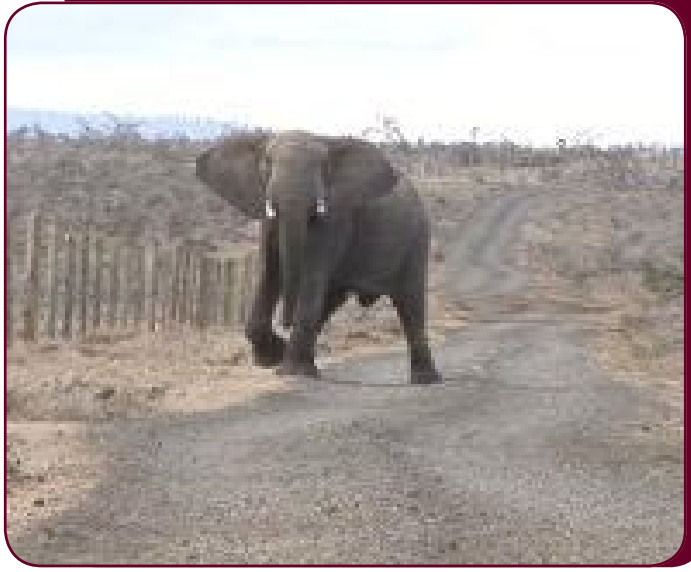
# Building capacity to alleviate human-elephant conflict in north Kenya

Project ref: 15-040
Adaptive Management for Adaptive Elephants
Max Graham
Cambridge University

We walked slightly hunched, staying as close to the ground as possible without crawling on our hands and knees, our feet dwarfed by the enormous footprints of the animal we were following. The country was disconcertingly open, no trees or bush to cover our approach. Before us a giant suddenly stopped in his tracks, all six tonnes of him, his ears spread like great satellite dishes silhouetted against the early morning sun; his head moving slowly and purposively from right to left from left to right, as he tried to detect some signal from the environment around him as to where he should move next in pursuit of the three ecological drivers: sex, sustenance and safety. A brand new electrified fence stood imperiously to our left, stretching out as far as we could see. But this is just a small stretch of the 163 km fence under construction by the Laikipia Wildlife Forum to alleviate the massive problem of crop-raiding by elephants in northern Kenya. We stopped too, ensuring we kept beyond the 30 metre threshold where an elephant's fortuitously bad eye sight can detect a man. I was walking with David Wahome, a local farmer who has been trained under our project to identify what wildlife managers call 'problem elephants', that is elephants that persistently damage property, destroy crops and in this case, break electrified fences. Wahome monitors these elephants, who are almost exclusively males, taking photographs and setting up identification files, to enter into a dedicated database so that our local conservation partners in Kenya can track the crimes committed by these defiant giants.

The wind changed and suddenly we were upwind of the male elephant we were following who Wahome calls Genghis Khan. Before we had a chance to react, Genghis turned 180 degrees and began to walk towards us, worryingly passing the threshold we had been so careful to maintain. We stayed motionless listening to our hearts pounding wildly, not daring to move as in this open country we really had nowhere to hide. Genghis stopped again this time abruptly so that dust was kicked up in clouds all around him. He then shook his head ferociously so that his ears snapped, creating a sound like thunder and stretched his trunk out towards the fence, gingerly feeling the top of a post where there was no electrified wire. This was the moment I had come to witness. Genghis pulled the post so that it crashed to the ground in front of him, the sound of wire on wire

Photo credit: ©Laikipia Elephant Project



echoing along the fence line, expensive insulators snapping from fence posts along a 20 metre stretch. He then climbed with surprising gracefulness over the mangled mess of fence posts and wire he had created, to amble back into the ranch he had come from, leaving a night of destroyed crops and damaged homesteads in his wake. “This is now the third time,” said Wahome. “Now something must be done.” Every year between 2002 and 2006 trained scouts working in Laikipia, a 10,000 km2 officially unprotected but critically important wildlife area in northern Kenya, recording over 3000 incidents of elephants raiding smallholder crops. This is the most extensive and intense human-elephant conflict in Kenya. Each incident risks causing an immediate subsistence crisis for the households affected. It also results in enormous tension between local farmers and those who are perceived to protect elephants, such as the government authorities and large-scale ranch owners. In a bid to protect these farmers and secure a future for the 7,000 elephants that live here, Kenya’s second largest

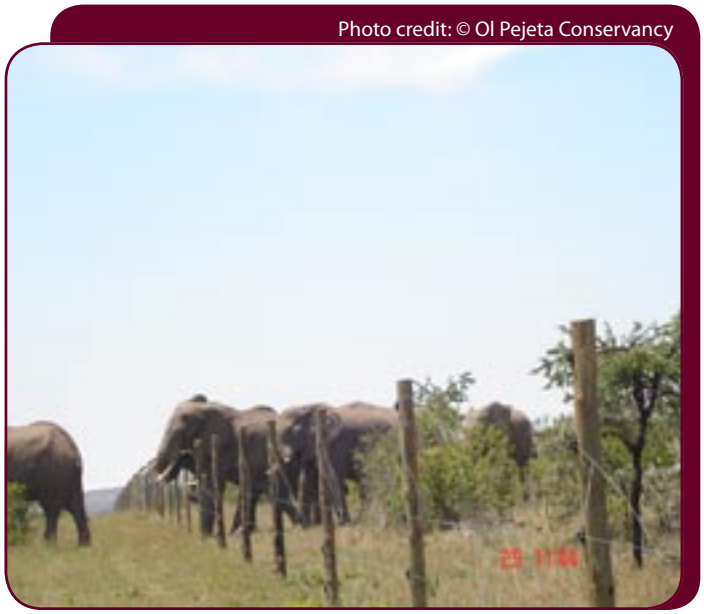


Photo credit: © Ol Pejeta Conservancy

elephant population, Cambridge University, with support from the Darwin Initiative, is working with local partners to alleviate human-elephant conflict. Initially this work involved supporting local farmers with simple and affordable farm-based deterrents. In 2007 however, the project was realigned to support the Laikipia Wildlife Forum to help make a 163 km elephant fence work. The fence aims to keep elephants inside large-scale ranches where they are tolerated and out of small-scale farms where they are not tolerated. This is no easy challenge. As soon as the first 84 km phase of the fence was constructed, it was broken by a few adventurous bull elephants. Then the arms race began. Different and improved fence configurations were tried but it seemed the elephants always figured out how to breach the most sophisticated design, even using tree branches to break the electrified wires.

Under these frustrating circumstances and escalating levels of human-elephant conflict, we looked at which fences had worked in the past in Laikipia and why. We then shared these lessons with our partners on the ground through a working paper and follow up technical meetings. As a consequence the fence design changed to include outriggers and better distribution of energisers so that voltage could be maintained above 7kv. Finally we set about putting in place an adaptive management system to cater for the evolving problems that lead to compromised fence effectiveness, in particular the presence of highly adaptive elephants. The system is comprised of several elements. The first is community elephant scouts who have been trained to systematically collect information on where and when elephants and/or people are breaking fences and where and when elephants are raiding crops. Where this information can lead to preventative action, a text message is sent by scouts via mobile phone to a rapid response team. The rapid response team is comprised of a jeep, two Kenya Wildlife Service rangers, a driver and an elephant scout. Where possible, the team uses torches and loud noise makers to scare elephants away from the fence, preventing breakages or scaring elephants that have broken out of the fence and onto smallholder land back into the large-scale ranches where they should be. David Wahome positively identifies any elephant that breaks the fence and monitors this individual to establish if it is a persistent fence breaker. A fence officer, Tobias, who received his MPhil from Cambridge University under this project, carries out a detailed assessment of fence performance on a monthly basis. To do this he analyses information collected from elephant scouts, David Wahome, the rapid response team and fencers. The report is circulated to a an executive fence management committee comprised of the Kenya Wildlife Service, the Laikipia Wildlife Forum and a nearby conservancy, the Ol Pejeta Conservancy. The report is also circulated to a series of sub-committees established at 10km intervals along the fence line and comprised of resident farmers, government officials and

neighbouring ranch management. Meetings are held with these committees to discuss matters arising out of the reports and to plan for appropriate management interventions which are rapidly carried out under the supervision of the fence officer. This adaptive system of management has greatly improved the performance of the Laikipia elephant fence and provides a model for how to address the challenge of evolving problems, in particular the remarkable adaptability of elephants.

Photo credit: Laikipia Elephant Project

# Managing wetlands for sustainable livelihoods at Koshi Tappu, Nepal

Project ref: 15-014
Seb Buckton
Wildfowl and Wetlands Trust

Koshi Tappu Wildlife Reserve (KTWP) in the lowlands of eastern Nepal covers 175 km2 and was gazetted in 1976 to conserve the last remaining wild Nepalese population of Asiatic Water Buffalo. It was declared a Ramsar Site in 1987, and is the most important wetland for migratory waterbirds in Nepal, and one of the most important in Asia. The site is surrounded by a buffer zone of 173 km2, in which over 80,000 people live, most of whom are dependent on the natural resource base for their livelihoods. Pressures on people's livelihoods mean that existing patterns of resource use bring people into conflict with the reserve because people perceive that the conservation of the site results in reduced benefits for them. As a result, the reserve is viewed negatively by many and there is non-compliance with reserve regulations, leading to unsustainable exploitation of resources within the reserve and associated disturbance. The Wildfowl & Wetlands Trust is implementing an innovative Darwin Initiative project in partnership with Bird Conservation Nepal, Tribhuvan University, the Institute of Aquaculture at Stirling University, and CABI International. Our project aims to address the issues of unsustainable exploitation at KTWR by increasing the benefits resulting from the conservation and sustainable use of the biodiversity of the reserve and its buffer zone. We have identified the potential impacts of wetland resource use on biodiversity, the appropriate target groups of people for our project and the barriers to local people obtaining sustainable livelihoods.

*Livelihood options*

A participatory wetland socio-economic valuation and subsequent formulation of a Community Action Plan provided the basis for identifying the most resource-dependent and poorest groups of people, the potential livelihood alternatives available to them, and the investment required to ensure access to these livelihoods.

*Fish farming*

We leased five fishponds, to provide access to fish farming for 40 Malaha households. Training in fishpond management has been provided and recent harvests havegiven good returns. The Malaha groups managing the ponds are now considering how to invest the profits from this harvest – some are renewing the original leases themselves, other are leasing additional ponds to increase the area under fish farming for the group. As a result, demands on capture fisheries will be reduced.

*Handicrafts*

Many locally available wetland resources can provide a significant source of income if sustainable methods of utilization are known. However, these resources are often either neglected or underestimated, leading to their unsustainable use or poor management.

We facilitated mat-weaving and woven-grass product training events around Koshi Tappu Wildlife Reserve for 133 women to provide an alternative livelihood option. Both crafts utilise wetland plants, encouraging recognition of the values provided to people by wetland biodiversity and better management of wetland resources.

Seb Buckton © WWT

*Charcoal briquette production*

Around Koshi Tappu, a variety of fuel sources are used, including driftwood collected from the Koshi river, firewood collected from forests, and animal dung. The use of other sources of energy (solar, kerosene, etc.) is rare, due primarily to costs. Nepal is trying to increase the use of other sources of energy to reduce dependency on natural resources. We have promoted the use of invasive non-native plants to make charcoal, which can then be processed to form briquettes. They are cheap, a good and versatile fuel for cooking and heating, largely smokeless and burn more efficiently. Small co-operative groups have been set up and after training have negotiated with local businessman to provide briquettes for selling in local shops. Demand is known to be high, partly as a result of local radio and television items promoting their use. There is no other local source of briquettes currently, they are cheaper than firewood and better for human health.

*Water hyacinth compost production*

Water hyacinth, Eichornia, is abundant in and around Koshi Tappu. Its rapid mat-like proliferation over areas of fresh water causes a variety of problems. Water hyacinth does have many uses though. We have promoted the use of water hyacinth to make compost for use on agricultural land. Compost production encourages removal of water hyacinth from ditches/oxbow lakes/canals, resulting in improved wetland habitat for aquatic biodiversity and easier access to fishponds for fishermen. Use of water hyacinth compost reduces dependence on chemical fertilizers, which have a cost implication for local people but also result in excessive nutrient inputs into Koshi wetlands.

*Disseminating project outcomes*

The project has been successful in establising strong links with wetland resource users. It has also demonstrated the potential for benefits that can result from sustainable management of wetland resources. However, the large population resident in the area surrounding the site means that the project has not been able to work with everyone. Therefore we have investigated the most appropriate means by which results from the project can be disseminated, and other wetland resources users encouraged to take up some of the activities descrtibed above. To this end, community 'drop in' centres have been established within existing businesses – tea shops. Tea shops are ubiquitous in Nepal, and are the main social centres in many villages. Interpretative material has been produced to encourage visitors to the tea shops to learn about and engage in various sustainable wetland management practices, and understand better the links between livelihood provision, biodiversity, and sustainable management of wetlands. They also provide contact details for local venues for skills transfer training. Linking these centres to existing businesses enhances sustainability, whilst decentralising the locations make them accessible to a far wider number of people.

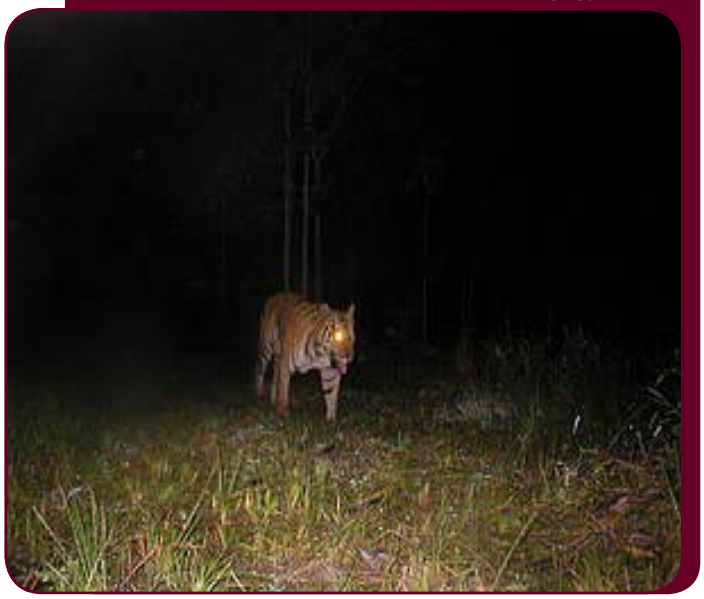
Matt Simpson © WWT

# Innovative approaches to tiger conservation in Cambodia

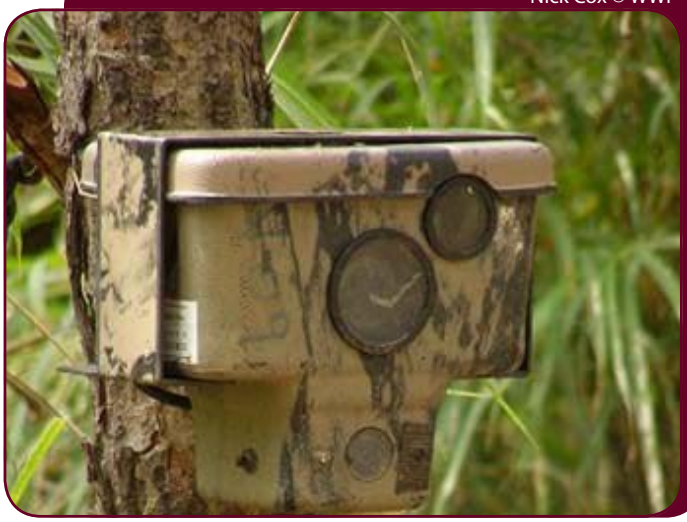
Project ref: EIDPO030
Kate Lee
IIED

Two US-trained dogs are the latest recruits to be employed on the Darwin Initiative project 'Scaling up sustainable conservation through community-based monitoring', (EIDPO30) led by the International Institute for Environment and Development (IIED). Their role will be to sniff for tiger scent in the Mondulkiri Protected Forest in Eastern Cambodia, one of Southeast Asia's largest remaining tropical dry forests and the focus of this project, field managed by WWF Cambodia staff.

The two dogs are currently being re-trained to locate the scat (droppings) of tiger and other carnivores. Using dogs to sniff out the scats from large carnivores has been widely used in other parts of the world with great success, such as tiger monitoring projects in the Russian Far East. Nicholas Cox, WWF Cambodia's Dry Forests Ecoregion Leader said "We know tigers are there. With more concentrated monitoring we have a better chance of spotting them – and this will enable us to put more protective measures in play."


Nick Cox © WWF

The Darwin Initiative has supported this innovative project since 2005 . Already rolled out is the use of over 165 camera traps, set up by wildlife biologists working with local community rangers. The traps are triggered by the animals themselves and have been a great source of evidence as to the species that live within the protected area, including tigers. This evidence shows the area is beginning to flourish once again, after years of war, colonial mismanagement of wildlife and civil strife. Other species have already been spotted by local communities and camera traps including elephants, wild banteng, Asian jackal, Eld's deer, the silvered langur, vultures, great hornbills, the giant Ibis as well as the highly secretive leopard.


Nick Cox © WWF

"It's now or never, we must act if the trend of increasing tiger prey species is to be made permanent," said Teak Seng, WWF Cambodia Country Director. "Stronger protection measures and a rigorous management plan are being implemented by the local government in Mondulkiri and WWF. When prey returns to the area the tiger population will have a chance to bounce back in a few years", says.

One aim of this project is long-term community-managed ecotourism as a means of securing the future for tigers and their habitat, through generating money for conservation activities and to support local

people, as well as ensuring the financial sustainability of the protected area. Local communities also represent the best chance for genuine conservation of key species within the region – they know the species, the area and their own poverty alleviation needs. Giving communities and local staff the skills to collect and analyse their own conservation data without having to rely on outside expertise is a way of allowing the development of their own unique wildlife monitoring and management systems and sustaining their own habitat for the future.

Lean Kha, a 48-year-old ranger working for WWF Cambodia, was a poacher in the 70s. "*As a 13-year-old boy I was forced by the Khmer Rouge to go into the forest and kill wild animals," Kha said. "I quickly learned to shoot and lay snares. During a period of 5-6 years I shot 16 elephants, 14 leopards and two tigers. At the time, I was ignorant and did not think of the consequences when I shot those tigers. Today I'm really proud to work for WWF, and to use my skills to combat wildlife crime so that there will still be tigers and other wildlife in the forest when my children grow up.*"

# Reducing the impact of feral livestock in and around the Centre Hills, Montserrat

Project ref: EIDPO027
Sarah Sanders
RSPB

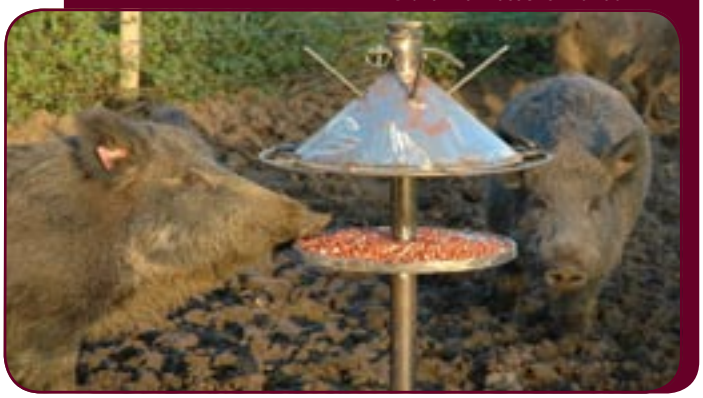
On July 28th, 2009 Montserrat will issue a set of stamps to celebrate the 200th birthday of Charles Darwin and the Darwin Centre Hills project.

The original Darwin Initiative project (14-027) was successful in assisting Montserrat to establish a management framework for the long-term conservation of the Centre Hills. Building on this success, the Royal Society for the Protection of Birds in partnership with the Food Environment and Research Agency, the Montserrat Department of Environment (DoE) and the Department of Agriculture (DOA) are implementing a post project to establish a sustainable, locally managed programme to minimise the destructive impacts of feral livestock in the Centre Hills.

After the volcanic eruptions in the early '90s, the number of loose goats making incursions into the Centre Hills has risen as livestock management has moved to the North of the island. Feral pigs numbers have also increased dramatically, following the escape of domestic stock from abandoned agricultural areas in the South of the island.

Evidence from other islands shows that livestock can have devastating impacts including: predation on globally threatened herpetofauna such as the Mountain Chicken, *Leptodactylus fallax,* and the Montserrat Galliwasp, *Dipoglossus montsserrati*; destruction of native plants which have evolved in the absence of ungulates and are probably lacking chemical or structural defences against herbivores; dispersal of non-native, invasive plant species such as guava *Psidium guajava*; consumption of the native *Heliconia caribaea* plant, causing loss of Montserrat oriole nests and territories; potential attacks on people, impacting on tourism; damage to crops and infrastructures; pollution of water courses; damage to infrastructure such as the fencing of springs in the Centre Hills; prevention of forest regeneration and causing soil erosion.

Giovanna Massei-Smith at FERA



The current project aims to support the conservation of biodiversity and improve livelihoods by providing the people of Montserrat with tools to mitigate the impact of feral livestock in and around the

Centre Hills. Working closely with DOE and DOA staff and with a a variety of local groups such as hunters, livestock farmers and the national GIS unit, the project will enhance local expertise and develop new skills to achieve the following:

• Undertake a baseline assessment of distribution and numbers of feral livestock in and around the Centre Hills. This will be carried out by estimating numbers of pigs and goats along transects, by attracting pigs to pig-specific bait stations called Boar Operated Systems or BOS, a system that has been trialled extensively in the UK to attract and count animals by remote surveillance, and by collecting data from hunters on number of pigs culled. From the latter, data on age and reproduction will also be collected to evaluate the potential population growth of this species. Gut content analysis will be used to identify key components of the pig diet;

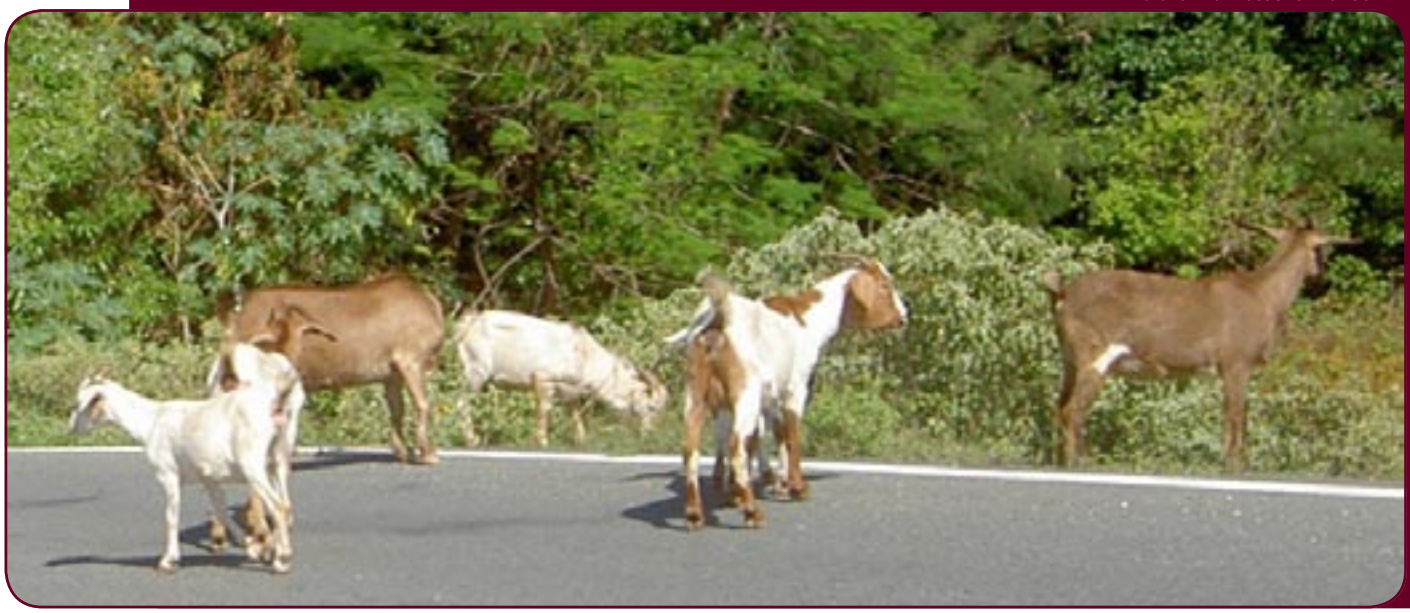
• Evaluate options to mitigate human-livestock conflicts in the area. For the feral pigs these will range from total eradication to control methods such as trapping and culling. For the goats mitigation methods will include containment such as fencing and tethering and culling inside the Centre Hills. These options will be discussed during a workshop with stakeholders that will result in a feral livestock action plan;

• Implement the feral livestock action plan so pigs and goats within the Centre Hills are reduced to zero or contained at low numbers and monitor its effects;

• Review and strengthen existing livestock policy;

• Work with the media to raise awareness on Montserrat and in the Caribbean about the impacts of feral livestock on biodiversity and livelihoods.

Giovanna Massei-Smith at FERA



## Information for Authors

Darwin News is published quarterly. Suggestions for articles can be submitted any time. In the first instance only titles should be sent. Articles will then be commisioned for specific issues.

If you would like to publicise any events such as workshops, you can also submit this information and it will posted on the Darwin newsletter information page.

**To complete a short questionnaire providing feedback on our support to your project in the last year please follow this link -http://www.surveymonkey.com/s.aspx?sm=JqES9ZXVDmvme7tlUNMuFg_3d_3d**

# Darwin People - Stephanie Godliman

**How did you get involved in the Darwin Initiative?**

I started working for the Darwin Initiative just over three months ago having returned to the Department for the Environment, Food and Rural Affairs (Defra) from maternity leave, so I am very much a newcomer to the Darwin family. This is a busy year for the DI owing to the bicentenary of the Initiative's inspiration. We are currently in the process of appointing new members to the Darwin Advisory Committee (DAC) that advises Defra's Secretary of State on the Darwin Initiative. We have just launched round 17 of Darwin, and have earmarked £1.5m for projects in Overseas Territories. I am also in the process of organising the annual Darwin lecture which will be held at the Natural History Museum on 26th October.

**What else do you do?**

As well as the Darwin Initiative I also have several other roles within the International Biodiversity Policy Unit which the Darwin Initiative sits under. I am the policy lead on the study into The Economics of Ecosystems and Biodiversity (TEEB), which is intended to be a Stern-style review of the economics of biodiversity and should be completed in October 2010. I cover work on CBD issues including business and biodiversity. Within Defra, I also lead on the Global Biodiversity Information Facility (GBIF) that relates to collecting biodiversity data. Finally I am responsible for the International Biodiversity Policy Unit's research budget. These additional roles allow me make the links between Darwin and what is happening in the wider context of biodiversity.

**What did you do before you worked on Darwin?**

Before joining the Darwin Initiative and going on maternity leave I worked within the International Biodiversity team working on the Convention on Biological Diversity (CBD). This included work related to biodiversity and biofuels, business and biodiversity and climate change and biodiversity. Before that I worked in Defra on another international MEA, the Montreal Protocol, which relates to substances that deplete the ozone layer. I have always been interested in the environment and development, building on my degree in politics. In 2005 I took part in a course In India where I got to learn more about development from a developing-country perspective. Whilst there I was lucky enough to meet a project manager of a Darwin project (Bees of Nilgiri, Project ref: 15-001). It was here that I first learned about the Darwin Initiative.

**What do you enjoy about working on the Darwin Initiative?**

So far all of it! It's very challenging and extremely interesting. I have enjoyed working with the DAC, and really value their extensive knowledge and expertise. I have enjoyed meeting new project leaders at a recent PLs workshop, and learning more about their projects. I also enjoy working with our contractors to ensure that the day-to-day running of the Darwin Initiative is a smooth one! Overall I relish being part of the valuable work being done around the world as part of the Darwin Initiative.