Newsletter

January 2017

Juvenile and infant chimp playing, Credit: A. Plumptre

DARWIN INITIATIVE

The Darwin Initiative supports developing countries to conserve biodiversity and reduce poverty. Funded by the UK Government, the Darwin Initiative provides grants for projects working in developing countries and UK Overseas Territories (OTs).

Projects support:

- the Convention on Biological Diversity (CBD)
- the Nagoya Protocol on Access and Benefit-Sharing (ABS)
- the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
- the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

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DARWIN INITIATIVE

darwininitiative.org.uk

Credit: Rona Dennis

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Feral sheep on St Helena, Credit: Edward Thorpe

Publicity and information about the Darwin Initiative

For more information on the Darwin Initiative please visit **gov.uk/government/groups/the-darwin-initiative**

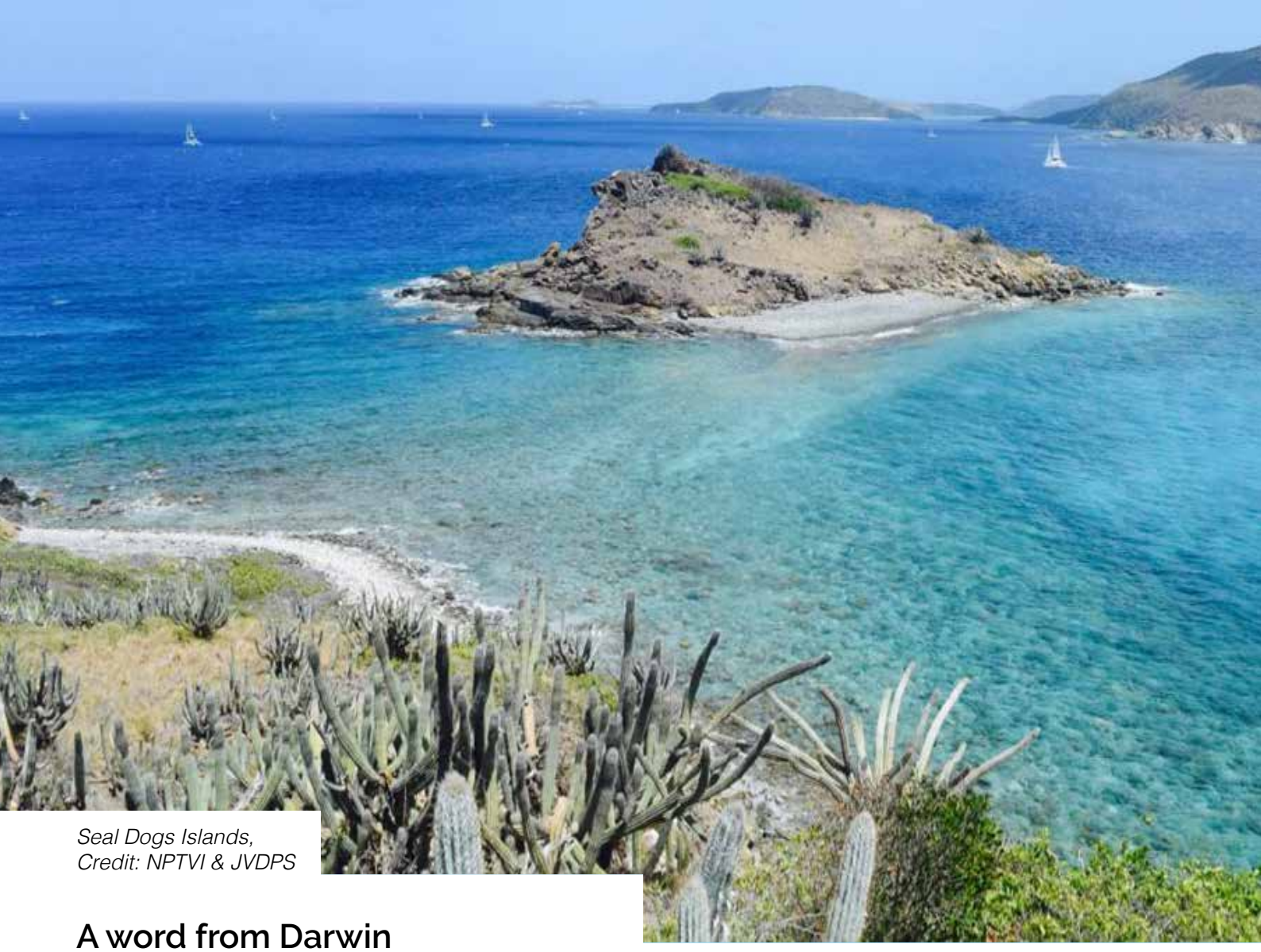
For further details about current and completed Darwin Initiative projects, including their final application forms, please visit **darwininitiative.org.uk**

We also have a blog, that includes news and thoughts on issues being tackled by the Darwin Initiative – both at the project and programme level. You can read it here **darwininitiativeuk.wordpress.com**

We're also keen to share other Darwin project blogs. If you have a blog you'd like to share on our website, please get in touch at **darwin-newsletter@ltsi.co.uk**

Publicity and referencing Darwin Initiative

We kindly remind project leaders that if they are publicising their work then it is important that they make every effort to mention Darwin Initiative funding. This is important as it helps us to ensure the Darwin Initiative retains a high profile and to secure continued Government funding.



Seal Dogs Islands,
Credit: NPTVI & JVDPS

A word from Darwin

A Happy New Year from us all at the Darwin Initiative!

2017 marks a very special year for us, as it is the 25th Anniversary of the Darwin Initiative. Since it was first announced at the Earth Summit in Rio de Janeiro in 1992, the programme has gone from strength to strength and funded almost 1000 projects, in 159 countries across the world – a fantastic legacy.

Our theme for the first newsletter of the year is "Conservation and Conflict". Within the field of conservation, managing and mitigating different types of conflict is often one of the core aims of projects. The articles in this edition of the newsletter demonstrate the breadth and complexity of conflict faced by Darwin projects, including human-wildlife conflict, conflict between cultural groups and their use of natural resources and, in some cases, direct conflict between the two core goals of the Darwin Initiative: biodiversity conservation and poverty alleviation. Each individual project is distinct, but also falls within a broader programme, meaning that lessons and tools can be shared between projects. We hope that some of the articles below spark some interesting thoughts and conversations. Be sure to follow us on **Twitter** or find us on **Facebook** .

We love receiving project updates and stories for the Darwin newsletter, and we are eager to hear from projects throughout the year. If you work on a project and would like to share your success stories (or struggles!) with a broader audience, please get in contact any time at **Darwin-newsletter@ltsi.co.uk** and we can tweet, blog or Facebook about it! We are also always interested to know about any media coverage your project has received.

We hope you enjoy this edition of the newsletter - Happy Reading!

Darwin Team

Manta silhouette, Credit: Rob Perryman

Project articles

Predator proof corral, Credit: Snow Leopard Trust

Living with snow leopards - the power of collaboration

Munkhjargal herds goats and sheep in the remote Tost Mountains of Mongolia. It is a hard life and the winters can be brutal. For years, he's considered the snow leopard a threat to his livelihood. Several times each winter, a cat had entered his livestock holding pen, sometimes killing several goats and sheep at once. So, to protect his animals, Munkhjargal started sleeping outside, among his livestock. That was not only uncomfortable, but also scary. "I barely slept, always fearing a snow leopard might attack", he recalls. Although he has never killed a snow leopard in retaliation, he does admit, perhaps unsurprisingly, to having thought about it.

Munkhjargal's experience conveys some of the challenges inherent to conservation conflicts. We want to conserve populations of predators such as the endangered snow leopards, and yet these animals can threaten human livelihoods, wellbeing and in some cases, even lives. So, how do we solve these sorts of problems? One approach is to be more authoritarian, and increase the penalties for people caught killing predators illegally. In certain conflicts this can reduce the extent of illegal, retaliatory killing. However, coercion may also have perverse outcomes for conservation, such as reducing support for conservation activities. It is also ethically questionable for those eking out a living in the harsh landscapes of Central Asia.

Another strategy, and the one we are exploring as part of a Darwin funded project, is to work closely with the communities involved to develop participatory and locally-relevant solutions to protect snow leopards. In this way, the Snow Leopard Trust is developing alternative management strategies together with over 80 communities in the mountainous areas of Pakistan, India, Mongolia, Kyrgyzstan and China. Strategies include improved fences to protect livestock at night (corrals), insurance programmes to cover the costs of lost livestock, vaccination programmes to reduce losses of livestock to disease, and handicraft schemes to produce **predator friendly products for sale** in the USA. It is critical to the success of these schemes that the communities participate in their implementation and take ownership of them. In this way, we seek to remove the desire and the need for retaliatory killing and to build sustainable solutions that promote both livestock herding and snow leopards.

> "to protect his animals, Munkhjargal started sleeping outside, among his livestock"

The purpose of our Darwin project is to understand what impact these schemes have on livelihoods, attitudes and the populations of snow leopard that conservation values. It is crucial, as in any conservation project, that we are able to demonstrate what works and why. Our hope is that the lessons we learn can be shared across the snow leopard range, and also to address similar challenges across the world, so that we can be more effective in how we deal with these conflicts.

The approach has certainly changed Munkhjargal's life dramatically. As part of the Darwin project, our team in Mongolia helped him construct a corral fence around his holding pen to prevent snow leopards and wolves from entering. As he says: "I no longer fear for my animals or myself. I sleep in my ger [a round, portable tent] where it's warm and comfortable. The snow leopard doesn't bother me anymore". If this story is replicated across the communities we work with, the approach taken by the Snow Leopard Trust could make a profound difference to snow leopard conservation and the lives of herders.

For more information on project 22-004, click **here** or contact Project Leader Professor Stephen Redpath, **s.redpath@abdn.ac.uk**

Cocoa pod damaged by monkeys, Credit: M.Hulme/ RSPB

Cocoa crop raiding around Gola Rainforest National Park

For all the economic, environmental and cultural benefits that conserving forest habitats and wildlife bring for local people, there will always be some challenges and conflicts that need to be addressed in order to ensure the success of any project. As part of Darwin project number 20-022, Enhancing habitat connectivity through sustainable development around the Gola Rainforest, we have been researching the potential impact of crop raiding by mammalian wildlife on cocoa plantations in a 4km "leakage belt" around the Gola Rainforest National Park (GRNP), Sierra Leone, the subject of an ongoing REDD+ project, the first of its kind in West Africa

Cocoa is being promoted as a potentially more sustainable, and lucrative, livelihood alternative to environmentally damaging slash-and-burn agriculture. Farmers, however, suffer crop losses due to wildlife, mainly squirrels, monkeys and chimpanzees. These are often blamed on animals coming into the plantations from the GRNP, and can result in negative economic impacts and bad feelings towards conservation efforts, undermining the cocoa development work. Although much of the crop raiding wildlife is common in the agricultural matrix and not dependent on the National Park, this is an issue that GRNP urgently needs to deal with.

We have conducted an intensive assessment of cocoa pod damage in three forest edge communities, counting healthy, damaged and diseased pods on trees and on the ground during the peak cocoa growing season, October to November. Camera traps were also deployed in plantations to gather evidence of species presence. The data are in the process of being analysed, but there has been plenty of evidence noted of distinctive damage by squirrels (which leave tooth-marks and gnaw the cocoa seeds), monkeys (which leave different tooth marks, suck the seeds and drop them whole) and chimpanzees (which are strong enough to pull apart the pods by hand, leaving distinctive piles of pod fragments). However, as the greatest impact on production appears to be caused by fungal disease, it will be important to estimate the relative crop loss from both types of damage, as each will require different mitigation strategies.

> "Farmers...suffer crop losses due to wildlife, mainly squirrels, monkeys and chimpanzees"

A dedicated Crop Raiding Officer from the GRNP's Community Development department has advised on mitigation efforts, which include active guarding and noise making. However, both of these are highly labour-intensive and sensitive to time of day and habituation of

Western chimpanzees on camera trap, cocoa pod in mouth, Credit: M.Hulme/ RSPB

the primates to people. Application of chili oil to the pods to deter chimpanzees has also been trialed, resulting in some, qualified, success. As the project develops and results are confirmed from the field data, workshops will be carried out in the communities to communicate the findings.

Ultimately, the project aims to reduce financial losses caused by disease and wildlife and to educate communities on the positive effects of wildlife on agriculture in terms of seed dispersal and predator control. The project partners remain committed to ensuring direct livelihood benefits and direct benefits to biodiversity, showcasing an integrated landscape approach.

Written by Mark Hulme. For more information on project 20-022, click **here** or contact Project Leader Nicolas Tubbs, **nicolas.tubbs@rspb.org.uk**

> “Ultimately, the project aims to reduce financial losses caused by disease and wildlife”

Cocoa farmer near GRNP, Credit: M.Hulme/ RSPB

Marine turtle captured by fishermen, Credit: ReefDoctor

Addressing biodiversity conflicts through sustainable livelihoods

In the small fishing community of Ifaty, Southwest Madagascar, almost 500 marine turtles have been killed in the first eleven months of 2016. This represents an increase of 23% over the same period in the same village in the previous year, and is more than 3.5 times the number of turtles caught in the whole of 2010.

Faced with rapidly declining fisheries and increasing poverty, fishermen are increasingly hunting those species with a high market value, as demonstrated by the rapid increase in the catch of marine turtles. Large green turtles sell for US$50-60 - more than the monthly income of an average fisherman - and are therefore an alluring catch. However, competition for scarce resources alone does not explain the increased number of turtles killed.

The fishermen of southwest Madagascar have a history of hunting turtles, and there are many customs surrounding their catch and consumption. Traditionally, the sale of turtles was taboo, and their meat was reserved for village elders. The slaughter of turtles followed a prescribed ritual, and the act of eating the meat was steeped in ceremony. These customs helped maintain low levels of turtle harvest. However, the arrival of coastal migrants in recent decades has diluted protective customs, and together with increased poverty, this has created an active turtle fishery. Differing views on the role of turtles as a marine resource, coupled with a distinct lack of alternatives, both for income and food, frames a familiar 'people vs environment' narrative.

Such conflict is not limited to turtles: live corals and shells are collected for sale to passing tourists, seasons where fisheries are traditionally closed are disregarded by communities, and the use of mosquito nets as inexpensive fishing gear, contribute to the destruction of the marine resource base. While all of these activities are illegal, enforcement agencies lack the resources to effectively police them, and traditional deterrents such as fines are of little threat to impoverished fishermen that literally have nothing to lose.

> "Large green turtles sell for US$50-60 - more than the monthly income of an average fisherman - and are therefore an alluring catch"

This Darwin funded project acknowledges the conflict between biodiversity conservation and livelihoods, and recognises the biological, economic, social and cultural issues involved. In providing entry to novel aquaculture projects for coastal fishermen, particularly those involved in turtle hunting, a sustainable livelihood is developed, thereby reducing the economic imperative to hunt turtles and promoting the return of traditional customs surrounding turtles. A participatory approach engages communities in conflict resolution and supports decision making. For example, the implementation of seagrass protected areas along the coast, which is designed to shelter aquaculture activities from the destructive

Fishermen from the village of Ifaty in Madagascar practice beach seine fishing, Credit: Emma Gibbons

consequences of beach seine fishing, but which also generates additional biodiversity benefits. Building trust between those that want to conserve species, and those that want to exploit them is critical in mitigating this conflict in Southwest Madagascar.

Farmers involved in aquaculture activities also participate in a tag and release program for juvenile turtles. When a young turtle is accidently caught in fishing nets, it is brought to a community based turtle team. With the help of the fishermen who caught it, its biological information is recorded and it is fitted with a unique tag. The fishermen then return the turtle to the ocean. By engaging communities in the conservation process, they have an opportunity to consider a new perspective on the management of their marine resources, and engage in the shared nature of the conflict – a critical step in creating a long term resolution.

For more information on project 21-018, click **here** or contact Project Leader Emma Gibbons, **emma@reefdoctor.org**

Turtles prepared for food in the community, Credit: Emma Gibbons

Indonesian people are about to get their forest use rights back, Credit: Gabriella Frederickson

Social forestry: new hope or new worry for biodiversity conservation in Indonesia?

In the coming years Indonesia is hoping to answer a question that is in the minds of many people: can local communities effectively protect forest and wildlife? Surprisingly, we don't really know. But Indonesia is embarking on a nation-wide experiment to find out.

Under Indonesia's social forestry policy 127,000 km^2 of land will be allocated to community land use. To put that in perspective, that's similar to the size of the island of Java, or a little smaller than England. This includes forests for different types of use, including Village Forest *(Hutan Desa*, in Bahasa Indonesian), Community Forest (*Hutan Kemasyarakatan*) and Customary Forest (*Hutan Adat*). The forests will be under State control, but will be managed by communities.

In terms of democratic progress, this is a giant leap towards more equitable distribution of forest rights, especially for local and indigenous communities. For decades, people's rights have been ignored, with forest management being dominated by government and corporations. However, while it seems a good way to reduce conflict and improve human rights, the potential impact of social forestry on reducing forest loss and conserving wildlife is unknown. What will happen to forest and wildlife once they are in the hands of

Indonesia's forest communities? Or in more direct terms, are forest communities any better at protecting forest and wildlife than the previous managers, government and corporations?

There are quite a few examples of community-based forest management successfully supporting biodiversity conservation in Indonesia. In Wehea, East Kalimantan, for example, the indigenous Dayak community uses their traditional laws to manage 380 km^2 of logged forest for conservation by deterring illegal logging and poaching. Another example is in Laman Satong, West Kalimantan, in which the local community protects a remnant patch of forest from encroaching oil palm development.

But successes are only part of the story. Indeed, our new Darwin Initiative Project, a collaboration between the Indonesian Institute of Sciences, Fauna and Flora International, Borneo Futures and the Universities of Kent and Queensland, is showing that the performance of community-based forest management in avoiding deforestation varies widely. With additional support from the **Woodspring Trust**, our preliminary data suggest that the performance of community-based forest management in Indonesian Borneo is influenced by factors such as access from forest to markets, the occurrence of peat, and distance to agricultural lands. If we wish to get the highest benefit for conservation, social forestry programs could be directed toward the areas and communities which are likely to avoid deforestation.

> "this is a giant leap towards more equitable distribution of forest rights"

Another indicator that could be used to inform the selection of land for social forestry is conflict involving local communities in relation to deforestation. A **recent Kalimantan-wide study** suggests that communities with high dependency on forest are likely to strongly oppose deforestation by large-scale industries such as oil palm. These communities rely on the nearby forest for socio-cultural reasons such as to collect non-timber forest products for subsistence uses and traditional ceremonies. Therefore, the community's opposition to deforestation could be a useful consideration when prioritizing areas for social forestry.

> "People have a long history of forest use in Indonesia, and are about to get their rights back"

While we have preliminary clues on what factors could be considered in developing social forestry programmes, there are still unresolved questions. For example, do all communities that have proposed social forestry have the capacity and resources, including support from non-governmental organizations, to sustainably manage the proposed forest? How can the government, both at central and local levels, facilitate the governance of social forestry programs including in planning, approval, supervision, and monitoring? Our project is helping to address these questions in Kalimantan by providing the scientific evidence base to help allocation decisions and monitoring of community forest programmes.

Indonesia's social forestry policy is a contemporary test of democracy and human rights, and if successful, could become the showcase of community-based conservation in the world. We implore the government to heed the need for information, support ongoing research and take these findings on board.

A version of this article was recently published in Kompas, a national newspaper in Indonesia: Sugeng Budiharta (14/12/2016) Perhutanan Sosial dan Upaya Konservasi, Kompas.

For more information on project 23-033, click **here** or contact Project Leader Dr. Matthew Struebig, **m.j.struebig@kent.ac.uk**

Timber remains an important resource in Kalimantan, Credit: Gabriella Frederickson

Community meeting, Credit: Indrias Getachew

Rights, revenues and responsibilities - solving conflicts using PFM for wild coffee conservation

Conflicts have often occurred with conservation initiatives due to their impacts on local communities. Key issues are the displacement of people, the loss of access to resources, and impacts on livelihoods. It is now broadly recognised that the rights of human communities need to be respected. New approaches to conservation need to be explored so that communities are engaged in meeting conservation goals and ensuring sustainable outcomes. The use of participatory forest management (PFM) for the conservation of wild coffee in southwest Ethiopia is one such approach. It could ensure long-standing conflicts over forests are resolved and new ones avoided, while conserving wild coffee.

The forests of southwest Ethiopia are globally significant and host the largest remaining population of wild Arabica coffee. Maintaining this diverse genepool is important for the future of coffee breeding and exploring natural adaptation of these plants to climate change. These forests became state property in the late 19th century when the modern Ethiopian state was established. Since then, local use of the forest was formally restricted, while parcels of forest have been granted as rewards to national elites (before 1971) and more recently used for state farms, resettlement schemes, and commercial estates of national and international investors. Due to limited state staff and resources the remaining state forest has been effectively "open access" and much was degraded. In total almost half of the forest in this area has been lost in the last 50 years and the remaining stands of wild coffee have been threatened.

There is conflict between communities and the government over restrictions on local use, and access to the forest. Application of PFM has been one way of protecting the wild coffee stands, whilst also improving the livelihoods of many people living in forest-fringe areas, and mitigating this conflict. Through this process the natural forests have been given back to the communities – and the risks of forest alienation by the state reduced. Management plans for the forest, including the wild coffee stands, have been agreed between the communities and the government allowing monitored sustainable off-take of most forest products. Increasing the revenue for these forest products has been achieved through the development of community based cooperatives with links to international markets for honey and both cultivated and wild coffee. Secure access rights to their forests and revenues from these assets are the benefits the communities receive in return managing and monitoring the forest and its precious wild coffee. Community and government jointly monitor the forest management plans and address issues as they arise. A working forest is now secured, with wild coffee stands protected.

Written by Adrian Wood and Fiona Hesselden. For more information on project 19-025, click **here** or contact Project Leader Professor Adrian Wood, **a.p.wood@hud.ac.uk**

Community members harvesting grasses from community managed grasslands, Credit: ZSL

Securing Suklaphanta Wildlife Reserve's grasslands and well-being of local communities

Historically, the western lowland terai has been among one of the most biodiverse and fertile landscapes in Nepal. The Mahakali River flows through the floodplains, enriching them with sediment and nutrients. Until recently, only the indigenous Tharu people inhabited the area; they are resistant to the prevalent malaria which used to restrict large populations of other ethnic groups. The introduction of a malaria eradication programme across the terai by the Government of Nepal/USAID, has resulted in an unprecedented rate of migration from mid-hills into the lowland and an increased population across the region. As a result, most of the important wildlife habitats, e.g. forested landscapes, grasslands, and wetlands, were rapidly converted into agricultural fields and settlements.

To protect the shrinking riverine grasslands and wildlife habitats, Suklaphanta Wildlife Reserve (SWR) was established in 1976. The reserve provides refuge for threatened wildlife such as tiger, elephants, rhino, various deer species, sloth bear, grassland dependent birds and other wildlife. As more and more people continue to migrate from mid-hills to the lowlands in search of better opportunities for livelihoods, human-wildlife conflict (HWC) has escalated in the area. Human deaths and injuries from wildlife attacks, crop raiding, loss of livestock, and property damage are some of the key HWC issues of SWR.

Considering this, in 2004, an area of 243.5km^2 around SWR was declared as buffer zone to address some of the HWC issues. Through its buffer zone programme, SWR has been conducting various integrated conservation and development programmes such as education and awareness, providing alternative livelihood support and relief support to wildlife victims in order to help mitigate HWC.

> “The local communities residing in the buffer zone of the SWR are dependent on the forests and grasslands of the reserve”

The local communities residing in the buffer zone of the SWR are dependent on the forests and grasslands of the reserve. Compared to other protected areas in Nepal, the buffer zone of SWR has very low forest cover and grasslands provide few benefits due to overgrazing by large number of unproductive livestock. This increases the tension between the reserve administration and local communities, adding a new dimension to protected area management in Nepal.

The Darwin Initiative funded project focuses on reducing the dependency of local communities on the Reserve's resources by promoting use of improved livestock breeds to replace the low productivity cattle currently reared by local communities. Previously, low-cost yet unproductive livestock were left to graze unprotected within SWR, putting them at risk of predation. Now, improved breeds are too valuable to be left unguarded. As a result, most of the community members supported

Women run dairy cooperatives' monthly meeting, Credit: ZSL

through the purchase of improved livestock breeds have already started stall-feeding their livestock. This has helped reduce the pressure on the grasslands of SWR whilst ensuring better economic benefits to communities, and reducing human wildlife conflict.

Communities are also receiving benefits such as training and advice on improved grassland management, planting of fodder trees, and income-generation training on improved livelihoods that reduce dependency on SWR's resources. Veterinary clinics supported by the project are providing health services for livestock as well as contributing to reducing the risk of disease transmission between livestock and wild ruminants. The clinics are building a closer and more positive relationship between the reserve administration and local communities, to help sustain the project's benefits in the long term.

This project is being implemented in SWR by ZSL with Suklaphanta Wildlife Reserve and its buffer zone management committee and in partnership with National Trust for Nature Conservation and Himalayan Nature.

For more information on project 22-009, click **here** or contact Project Leader Hem Baral, **hem.baral@zsl.org**

Fodder seedlings transported from project nursery, Credit: ZSL

Credit: WCS

Increasing agricultural yields in Western Uganda reduces the impact of animal raids

Imagine you are a farmer and you just woke up to find out that your field has been raided by animals. That is it! You have had enough of these creatures making your life miserable. There is barely enough left to get you to the next harvest. You decide to cut down your last bit of forest, get rid of these animals, and sell the trees to pay for food.

This reaction is not unusual across the Murchison-Semliki Landscape in Western Uganda, where small pockets of forest patches provide a corridor for wildlife to access bigger patches. Unfortunately, communities often do not realise that they are only making things worse by cutting down the forest as deforestation increases vulnerability to climate change, increases the risk of a disaster, and increases human-wildlife conflict.

With Darwin funding, Wildlife Conservation Society (WCS) is trying to remedy this situation. WCS has developed a Climate Smart Agricultural programme in Hoima, one of the Districts in the Murchison-Semliki Landscape.

WCS and partners are working with smallholder farmers who still have natural forest on their land, to protect the forests, improve crop production and increase community resilience to climate change, while also protecting roughly 1000 chimpanzees.

> “Wildlife in these forests is now appreciated much more, because the communities recognise the benefits of a balanced ecosystem”

As a result of this initiative, WCS is improving the lives of many smallholder farmers. Yields have improved by around 180%. Traditionally, on average a farmer produced 700 kg of maize per acre. This has increased to an average of more than 2000 kg per acre. This means that if farmers experience crop raiding, the impact is significantly less.

Wildlife in these forests is now appreciated much more, because the communities recognise the benefits of a balanced ecosystem. These benefits outweigh the losses experienced as a result of sporadic crop raids.

For more information on project 22-011 click **here** or contact Project Leader Miguel Leal, **mleal@wcs.org**

Team Pokja Manta, Credit: Rob Perryman

Preventing conflict between dive-tourism development and manta rays in Raja Ampat Indonesia through community-based management

As one of the most exciting dive destinations in the world, the Raja Ampat Regency of West Papua, Indonesia is currently undergoing rapid development of its tourism industry. With the support of the Darwin Initiative, Marine Megafauna Foundation (MMF) is working closely with local communities and institutions to make sure this does not harm local wildlife.

One of the major draws for dive-tourism in Raja Ampat is the healthy population of manta rays, which visit the warm shallow reefs to feed on dense plankton blooms and be cleaned by reef fish. In recent years there has been a decline in sightings of manta rays at key 'cleaning station' sites which are regularly dived. Many stakeholders including the local people, dive resort owners and government are keen to take measures to ensure that increasing numbers of tourists do not damage the local wildlife.

As part of a Darwin Initiative Scoping project, MMF has established links with a variety of partners in the region, and developed community-based management strategies to reduce conflict between locals, tourists and manta rays. Along with partners including Conservation International, the regional Raja Ampat government and tourist board, and local dive resorts, we have formed 'Team Pokja Manta'. Between June and September 2016, we conducted community engagement workshops in villages throughout the region, as well as interviews and staff training sessions for a new guard post at one of the main local manta ray cleaning sites, known as 'Manta Sandy'. This project will enable 8 local people to be employed as 'Manta Guardians', and be intimately involved in the management of local wildlife. A limit on the number of divers allowed at the site per day will be enforced, and diver behaviour will be monitored, minimising any negative impact of over-enthusiastic tourists on manta rays in the region.

> "manta rays...visit the warm shallow reefs to feed on dense plankton blooms and be cleaned by reef fish"

MMF scientists and Team Pokja Manta will continue to monitor the effect of this project on manta ray numbers, and we hope to develop further capacity for community-based management and employment of local people in marine conservation. To that end we have worked closely with the University of Papua in Manokwari to enable young students to have opportunities working with our scientists on research projects. In the last months, our researchers have hosted work experience students from UNIPA, visited the university to talk about our work, and presented our work at the Bird's Head Seascape International Conference on Marine Biodiversity and Conservation

For more information on this scoping project, please contact Project Leader Rob Perryman, **rob.perryman@marinemegafauna.org**

When less is more: resolving the conflict by promoting sustainable wild plant harvesting

When villagers in the Northern Vietnamese province of Bac Kan collect Woolly Fern and the 'immortality herb' Jiaogulan, are they thinking of rotational harvesting or biodiversity protection? Many women and men who harvest wild plant species simply want to make a living. There is conflict between maximizing short-term income via unsustainable overharvesting, and securing the resource for the future.

The lives of villagers in Bac Kan can be difficult. Earning a living wage in remote areas of this Vietnamese province requires households to find income from any revenue stream they can. One source of income comes from the harvest of wild species of medicinal and aromatic plants (MAPs). Overharvesting is a risk to biodiversity and the livelihoods of those communities that rely on these natural resources. Efforts to develop a robust and sustainable local industry from these MAPs can ensure responsible species management and improve local livelihoods.

In 2011, TRAFFIC launched a programme to enhance the benefits from sustainable wild-harvesting to MAP collectors. This programme was **expanded in 2015** from one pilot site to four (and from 100 collectors to 1,000) with the support of Darwin Initiative funding.

The programme aims to facilitate the development of collector groups and co-operatives using the FairWild Standard. These principles outline best practices on sustainable harvesting and equitable trade in wild plant ingredients. Today, 16 collector organisations now operate in Bac Kan Province. These collector organisations are key in empowering individual members to improve the quality and the market value of harvested plants. These improvements are developed through **project-supported capacity-building programmes**, and by facilitating better market channels.

The support of pharmaceutical companies and the provincial Forest Protection Department (FPD) is integral to the success of the project. Three Vietnamese companies have been engaged to date, establishing direct links to collectors. These partnerships ensure the product maintains a high quality and opens marketing avenues. The project is facilitating the development of trading agreements between actors in the value chain that includes an agreement to pay a 5% mark-up on the market price of Jiaogulan *Gynostemma pentaphyllum*.

To maximize the market access of local harvesters while protecting wild plant species, **TRAFFIC and the FPD trained a team of trainers** to expand the knowledge base of collectors throughout the province. These trainers are now spreading the message about sustainable harvesting practices to over 1,000 wild-harvesters. Workshops have also been facilitated by FPD and TRAFFIC to enhance the understanding of sustainable harvesting practices and business management among collectors.

Beyond Bac Kan province, the project is working with the **Traditional Medicine** sector to establish an enabling policy and regulatory environment that supports TRAFFICs work with local collectors.

By fostering cooperation between FPD, the pharmaceutical sector and collectors, the project is demonstrating how Vietnam is committed to looking after its natural resources through sustainable collection, social responsibility, and FairWild guiding principles. TRAFFIC is working to ensure that harvesters are custodians of wild resources so they can protect their livelihoods and biodiversity.

For more information on project 22-010, click **here** or contact Nguyen Ba Cuong, **cuong.nguyen@traffic.org**, or Richard Thomas, **richard.thomas@traffic.org**

Processing Jiaogulan Gynostemma pentaphyllum *Bac Kan, Credit:TRAFFIC*

Saint Helena Cloud Forest, Credit: Ben Sansom/Arctium

Making water supply catchments work: providing clean drinking water and protecting Saint Helena's cloud forest

The provision of clean drinking water can be a cause of conflict between land use and the protection of our biodiversity. Since the South Atlantic island of Saint Helena was discovered by the Portuguese navigator Joao da Nova Castella in 1502, the biodiversity of the island has been in decline. Early records indicate that the interior of the island was covered by dense forest, extending to some coastal areas. The introduction of goats and pigs, followed by permanent settlement in the mid 17th Century, significantly impacted the islands forests and woodlands. The island was almost entirely stripped of trees by 1802 due to the combined impacts of introducing livestock and clearing land for agricultural use and firewood.

This had a significant impact on the water supply, as the cloud forest and surrounding woodlands catch mist which percolates into the ground to feed the springs and streams. A reduction in cloud forest and woodland has a negative effect on the total stream flow of the island as less mist is intercepted, resulting in less water available for potable water supply.

St Helena has experienced unpredictable weather in recent years, which has led to three droughts in the past four years. The island has a very high dependency on rainfall and mist capture to replenish water supplies. With the planned increase in eco-tourism, water demand is expected to rise, whilst climate change is likely to further impact on weather patterns.

The 20-Year Water Resource Masterplan outlines development and management of island water resources to provide security of supply and enable resilience to climate change. The preferred development approach is through rainwater harvesting (mist capture). Improving mist capture in the Peaks through restoring endemic cloud forest would increase available water resources and provide more cloud forest habitat for the islands endangered endemic plants and invertebrates.

This project is a collaboration between Saint Helena Government, Connect Saint Helena (the island's utility company), the Centre for Ecology and Hydrology, and Arctium to develop sub-catchment scale water balances to understand the relationship between the cloud forest, mist capture and the impact of invasive species in the cloud forest on the islands water supply. Data is being collected from a new network of monitoring equipment measuring climate, mist interception and water levels and flows in streams and springs.

Outcomes will support development of a cloud forest restoration plan, which will ensure the protection of the islands endemic plans and animals, as well as providing a more secure water supply for the island's people.

For more information on project DPLUS051, click **here** or contact Ben Sansom, **bensansom@arctium.co.uk**

Liben lark, Credit: Alice Ward-Francis

Sustainable management of an Ethiopian rangeland for biodiversity and pastoralists

On the Liben plain in Ethiopia, around 10,000 pastoralists are dependent on managed grasslands for their livelihood. The rangelands of southern Ethiopia were once some of the most productive land globally and home to a wealth of endemic wildlife. Scrub encroachment, overgrazing, and drought have reduced the rangeland to less than 7,500ha of severely degraded grassland. These pressures are having huge impacts on the ability of the plain to support pastoralists and biodiversity. The Liben lark is a species closely tied to the plain and is now on the verge of becoming mainland Africa's first recorded bird extinction caused by such changes.

Continued grassland degradation is causing pastoralists to suffer from declining livestock productivity, reduced income and increasing food insecurity. During the dry season, cattle now produce barely enough milk to support their calves, with almost no surplus for people. Driven by the declining fortunes of pastoralism, some pastoralists are turning to cultivation, which is leading to further loss of grassland. However, cultivation has proved unsustainable due to unpredictable rainfall and the poor soils associated with the plain.

This year, Ethiopia suffered severe drought which is making the situation even more acute. Is there a solution to protect the grassland?

Pastoralism is in decline in Ethiopia but it could be a sustainable solution to reducing habitat overexploitation and poverty. We are running a project which aims to deliver win-wins for both people and biodiversity through creation of community managed grassland reserves called "kallos". We are using Participatory Rangeland Management techniques established by project partner SOS Sahel. Kallos are communally managed under a set of customary pastoralist by-laws and self-regulated by pastoralist communities.

> "During the dry season, cattle now produce barely enough milk to support their calves, with almost no surplus for people"

Enclosed kallos can provide the pastoralist community with access to fodder in the long dry season, so that cows produce enough milk for human consumption as well as for calves. A customary benefit-sharing mechanism ensures the most vulnerable are given priority to the grassland reserves, including female headed households and the poorest members of the community. Thanks to support of the Darwin Initiative, this project could help to alleviate food insecurity and save the critically endangered Liben lark from extinction in the process.

This project is a partnership between RSPB, Ethiopian Wildlife Natural History Society, Birdlife international, SoS Sahel, Coventry University and Manchester Metropolitan University.

For more information on project 22-015, click **here** or contact Claire Stringer, **Clare.Stringer@rspb.org.uk**

St Helen, Credit: Andrew Darlow

Mapping St Helena's biodiversity and natural environment

St Helena is a 47 square mile island in the South Atlantic with a rugged volcanic landscape, tropical climate, and varied topography. The island's vegetation consists of lush green interior, encompassed by agricultural land, scrub, and coastward dry barren areas - it is home to one third of the UK and its Overseas Territories' endemic species. Since visitors first arrived, the Island's sensitive ecosystems have been modified and exploited, resulting in the loss of endemic species and fragmentation of habitats. It is increasingly threatened by the effects of climate change, tourism development pressures, and invasive species. The upcoming opening of the Island's first airport, and its aims to become more self-sufficient, requires careful land management, and restoration of habitats and protection of rare species. St Helena currently has many examples of conservation and conflict.

St Helena holds a series of 35-year old maps, high-detail localised and targeted data, disparate datasets and historical paper reports. This project, Mapping St Helena's Biodiversity and Natural Environment, is aiming to create new up-to-date detailed maps of the natural environment and biodiversity on St Helena, including habitat and soil maps that can provide baseline information for future management and protection projects.

Across St Helena, there are already many conservation projects in progress, from the Diana's Peak National Park Restoration, to the Airport Landscape & Ecology Mitigation Programme, as well as the Millennium Forest and Peak Dale Cloud Forest Restoration. Baseline maps will help support these conservation efforts and future management projects.

Resource management will always be a concern on St Helena, as this year especially we are experiencing an unusual and extremely dry year. Whilst climatic conditions are partly the cause, it's possible that some historical land changes (such as the introduction of flax) are also partly to blame, as well as an increase in consumption of water from human activities (such as washing cars and watering gardens). This project's habitat and soil moisture data will generate data to help understand and better manage these issues in the future.

Invasive species are also an increasing concern on St Helena, with some species, such as Pheasant Tail,

> "This project's habitat and soil moisture data will generate data to help understand and better manage these issues in the future."

outcompeting native and endemic species, such as Tree Fern. It is hoped that understanding the spatial distribution and environmental conditions for which some of these species thrive, may help support conservation projects and invasive species management.

> "Increasing the Island's self-sufficiency increases the need for agricultural land and water resources"

Increasing the Island's self-sufficiency increases the need for agricultural land and water resources, as does preparing for increased tourism, which requires land for other commercial and infrastructure developments. Unfortunately, suitable land may sometimes be hard to find and puts pressures on sensitive habitats.

Accurate island-wide detailed vegetation and soil mapping and derived datasets will help understand biodiversity, species geographic distribution, support protection and restoration of native habitats, support the control of invasive species, aid sustainable agriculture, land resource planning, and water resource management. The maps and habitat data created under this project will provide up-to-date information and a baseline to assist with future planning for both human and conservation efforts. Establishing a 'living map' for the Island, using remote sensing, field-based surveying, and a recently acquired terrain model, will provide a detailed broader geographic baseline, facilitating future updates and allowing people to update the maps and data in the future as the Island develops further.

For more information on project DPLUS052, click **here** or contact Project Leader Derek Henry, **derek-henry@enrd.gov.sh**

Credit: NPTVI & JVDPS

Consolidating local capacity for sustainable restoration and monitoring of protected areas in the British Virgin Islands

In September, the National Parks Trust of the Virgin Islands (NPTVI) and the Jost Van Dykes Preservation Society (JVDPS) officially launched the Darwin Plus-funded project entitled "Consolidating local capacity for sustainable restoration in British Virgin Islands (BVI) Protected Areas". The project focuses on restoring habitats for endangered species of flora and fauna on six islands in the BVIs through the eradication or control of alien species. Since 2012, NPTVI and JVDPS have collaborated on restoring protected areas via the control of alien species, and personnel from both organisations have participated in numerous capacity building activities with partners from other UKOTs and the UK. The project will build upon the momentum of past projects and use local community-members, working to consolidate capacity of the BVI and, ensuring that newly acquired skills are mainstreamed into long-term protected area management.

To kick off the project, NPTVI and JVDPS hosted a visit by technical experts Héctor Ruiz and José Vargas of HJR Reefscaping. Puerto Rico. A stakeholder meeting was held on 12th September 2016 to explain the project and methodologies to local partners. In addition to personnel from the two coordinating agencies, the BVI's Department of Agriculture, Department of Conservation & Fisheries, the Environmental Health Department and a private, locally based pest removal consultant were present. During the meeting Vargas and Ruiz gave a presentation on their successful rat control programme on Maria Langa using newly available self-resetting rat traps called "A24s", produced by a New Zealand based company. The feasibility studies for rat control were carried out prior to the project's start using experts from the UK and New Zealand; however, the local lessons from a small island with similar bio-geography were useful in fine tuning the operational plans for the projects. In particular, hermit crabs are a problematic by-catch in rat control/eradication campaigns throughout the Caribbean, and lessons from Puerto Rico will be incorporated into the upcoming project.

> "the local lessons from a small island with similar bio-geography were useful in fine tuning the operational plans for the projects"

On 13th September 2016 site visits were conducted to Green Cay and the Seal Dogs Islands (picture on page 4 of this newsletter), with NPTVI and JVDPS representatives accompanying Mr. Ruiz and Mr. Vargas in the field. This provided an opportunity for the Puerto Rico consultants to assess the terrain and vegetation, in order to provide recommendations for the operational plan to JVDPS, the lead agency on this project activity. The rat control campaign will launch in early January.

For more information on project DPLUS043, click **here** or contact Project Leader Lynda Varlack, **director@bvinpt.org**

Three Darwin alumni, Credit: Harrison Institute

General Darwin News - Where are they now?

Dr. Paul Bates of the Harrison Institute provides an update on colleagues who have worked with him on his four Darwin Initiative projects over the years.

On 16 October, 2016, Dr. Pipat Soisook was awarded the **Spallanzani prize** by the North American Society for Bat Research. Pipat, of the Prince of Songkla University, Thailand/Harrison Institute, is one of our former Darwin Initiative MSc (2005-2008)/PhD (2010-2013) students. He had been selected for this prestigious international prize from a global field of hundreds of researchers in recognition of his outstanding contribution to bat research.

This is the same Pipat who earlier this year had been part of a UNESCO funded team carrying out field surveys/biodiversity research in the Northern Mountain Forest Complex of the eastern Himalayas, one of the last forest wildernesses in Southeast Asia. These surveys are providing authoritative scientific data for the Myanmar (Burmese) government's submission to UNESCO for World Heritage Status. Pipat, who has already described one genus and six mammal species new to science, discovered many new records in northern Myanmar (Burma), including three likely new bat species. In these surveys, he was accompanied by, amongst others, Dr Sai Sein Lin Oo of the University of Mandalay in Myanmar (Burma) who was a student in our 2002-2005 Darwin project and Ms. Uraiporn Pimsai, an MSc student from our 2010-2013 project. Uraiporn, in addition to this survey, has recently returned from teaching at a training workshop in Cambodia. She was instructing in both the theoretical and practical aspects of rodents and disease transmission - part of a Cambatrat project, investigating the risk of human disease from the parasites of small mammals and bats. Just to note that this workshop was organised by Dr. Ith Saveng of the Royal University of Phnom Penh, a former MSc and PhD student from our 2005-2008 and 2010-2013 Darwin projects respectively.

This got me thinking of where are they now? What are the other students and staff of our former Darwin projects doing today? For, in our current age of indicators and verifiers, of logical frameworks and three year plans, it is sometimes possible to forget the long term impact of Darwin projects. However this is, of course, where the true value of the project lies. Does the project make a lasting, sustainable difference?

In November this year, I was in the University of Mandalay. I was attending a workshop, organised by Dr. Sai (see above) and jointly led by the Universities of Mandalay and Natural Resources and Life Sciences, Vienna, which is aiming to raise one million Euros to develop a new curriculum for the biodiversity sciences in Myanmar's university sector. One of the leading in-country participants, the Rector of Myeik University, Professor Si Si Hla Bu, is also one of our old Darwin Initiative project members (2002-2005). It was through the Darwin Initiative that she was able to have sustained

Signing a MoU with Myeik University, Credit: Harrison Institute

international exposure and develop a global network of colleagues. At this workshop, it was striking that most of the other participants were also individuals who in one way or another had been involved in our series of Southeast Asian Darwin Initiative projects.

Meanwhile, in my inbox there was an email from Christopher Imakando from the Copper Belt University, Zambia. Christopher is also one of our Darwin Initiative MSc alumni (2010-2013). Trained in Thailand as part of a Darwin project, he subsequently returned to his university and was recently promoted to Assistant Dean of the School of Natural Resources. Such are his skills and commitment that he was nominated in November by the Ministry of Education, Zambia to apply for a Commonwealth scholarship to attend the University of Greenwich to study for his PhD on 'Developing ecologically-based rodent management for Zambian farming communities'.

All of the above events happened in the last three months. They are tip of a large, very successful iceberg of activities relating to the biodiversity sciences and human welfare whose foundations were laid through individuals participating in one of the Harrison Institute's four Darwin projects. Not all of the Darwin Initiative's impacts are immediate or can measured within the project's three year duration but the long term impacts, in our experience, are often immense, sometimes unexpected and, more often than not, disproportionate to the initial investment.

> "Not all of the Darwin Initiative's impacts are immediate or can measured within the project's three year duration"

For more information on projects led by the Harrison Institute, click **here** or contact Dr. Paul Bates, **pjjbates2@hotmail.com**

Lesan Dayak women harvesting peanuts, Credit: Erik Mejaard

Newsletter Contacts

The Darwin Initiative Secretariat (Defra)

The Darwin Initiative Secretariat (Defra) The Darwin Secretariat is based in Defra and includes Claire Millar, Fiona Charlesworth, Jacqueline Tumwine, Sally Cunningham and Shaluki Perera.

If you have any general queries about how the Darwin Initiative operates please e-mail us at **darwin@defra.gsi.gov.uk**

For any queries on project applications or existing projects please contact our Darwin Administrators (LTS International) at **darwin-applications@ltsi.co.uk** or **darwin-projects@ltsi.co.uk**

This newsletter is produced quarterly. To include an article on your project please contact us at **darwin-newsletter@ltsi.co.uk**

The UK Government's Darwin Initiative aims to promote biodiversity conservation and sustainable use of resources around the world including the UK's Overseas Territories. Since 1992, the Darwin Initiative has committed over £126 million to over 997 projects in 159 countries