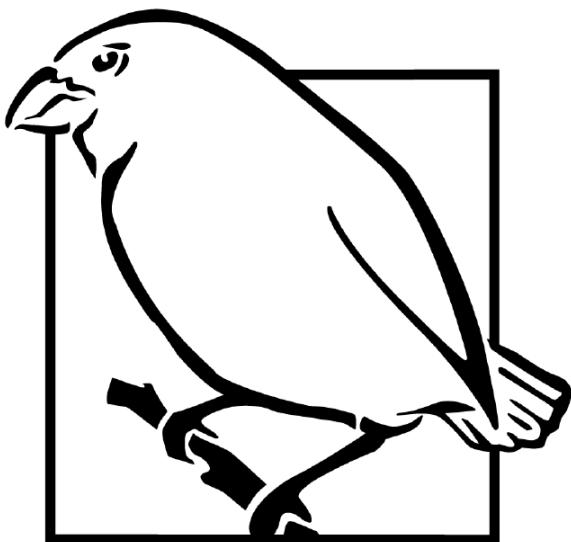


# Newsletter

March 2022



Photogenic vicuñas, Bolivia, Credit: Humber Alberto



**DARWIN  
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Funded by the UK Government, The Darwin Initiative provides grants to support developing countries to conserve biodiversity and reduce poverty, with Darwin Plus focusing its grants on the natural environment and climate change in the UK Overseas Territories (OTs).

Projects support:

- the Convention on Biological Diversity (CBD)
- the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- the Nagoya Protocol on Access and Benefit-Sharing (ABS)
- the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
- the Ramsar Convention on Wetlands
- the Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- the United Nations Framework Convention on Climate Change (UNFCCC)



[darwininitiative.org.uk](http://darwininitiative.org.uk)



*Succinea sanctaehelenae*, St Helena,  
Credit: Roger Key

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*Decentralised demonstration and propagation centres located within proximity of the target coastal villages, Philippines, Credit: Julian Gonsalves*

## Publicity and information about the Darwin Initiative

For more information on the Darwin Initiative including details about current and completed Darwin Initiative projects, and their final application forms, please visit [darwininitiative.org.uk](https://darwininitiative.org.uk). For Darwin Plus, please visit [dplus.darwininitiative.org.uk](https://dplus.darwininitiative.org.uk).

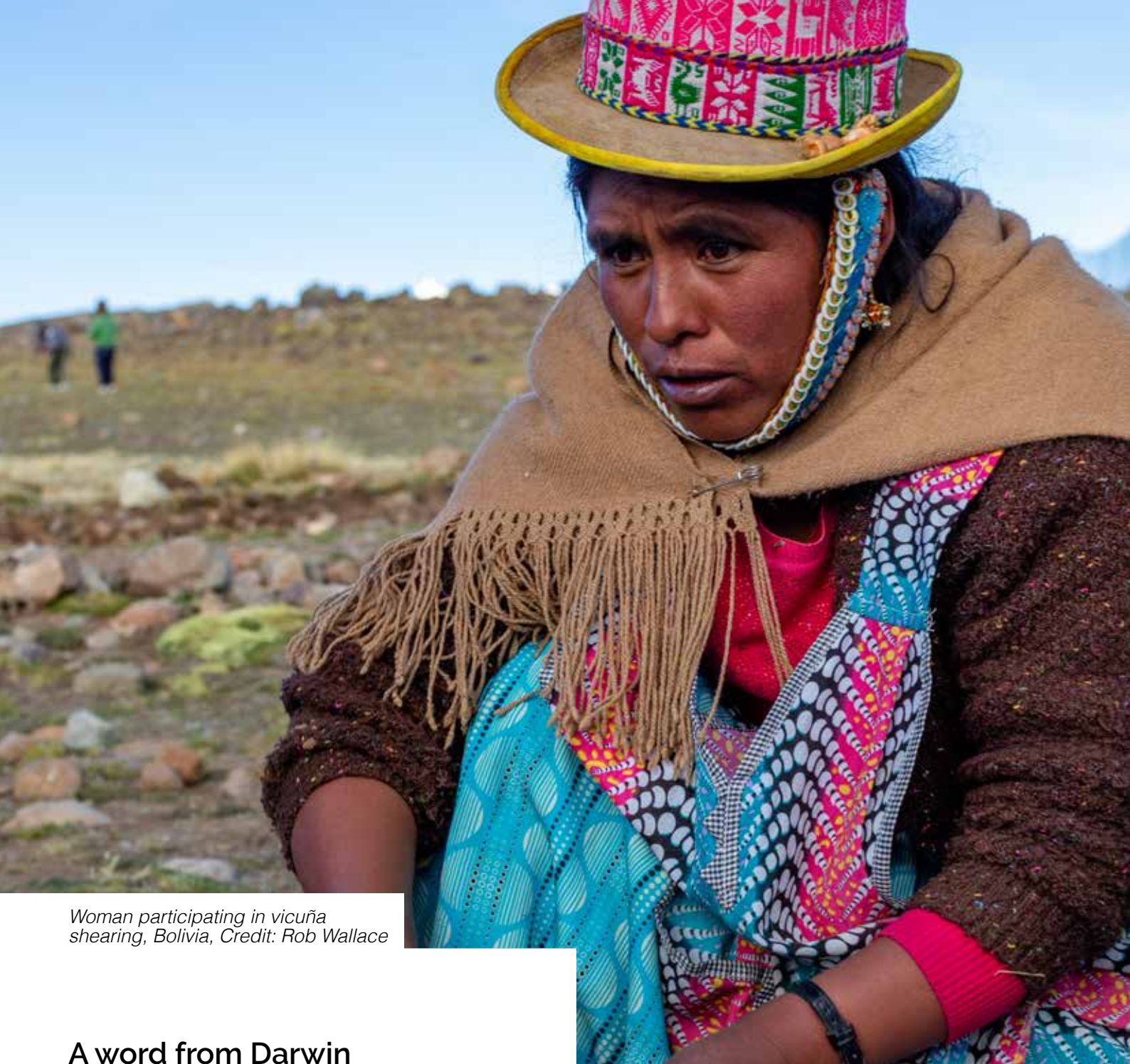
We also have a blog, that includes news and thoughts on issues being tackled by the Darwin Initiative – both at the project and programme level. You can read it here [blog.darwininitiative.org.uk](https://blog.darwininitiative.org.uk)

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](mailto: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 secures continued Government funding.





*Woman participating in vicuña shearing, Bolivia, Credit: Rob Wallace*

## A word from Darwin

Since the 1970s, well-known and iconic species, also known as “charismatic megafauna” or “flagship species”, have formed the backbone of conservation campaigns. Due to their popularity and status, these species were carefully selected to raise public awareness of the decline in endangered species populations and to build support and rally action for conservation measures.

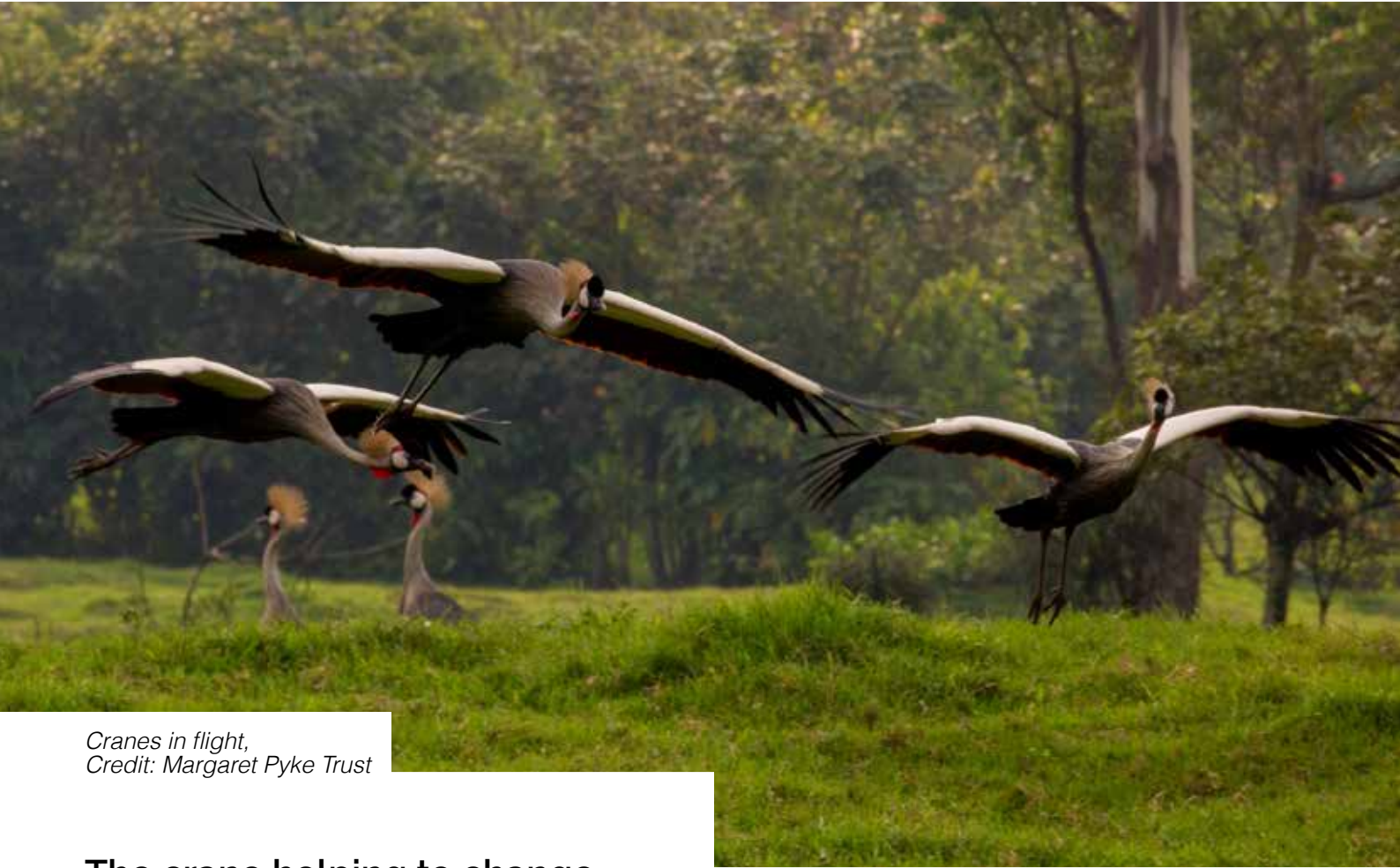
In this edition of the newsletter, we hear from a number of Darwin Initiative and Darwin Plus projects working on protecting well-known charismatic species such as sea

turtles in Chagos Archipelago, Uganda’s national bird, the Grey Crowned Crane, and the emblematic Tamaraw of Mindoro, Philippines.

This edition also sheds light on species that receive less attention, highlighting how projects are challenging traditional understandings of charismatic features while demonstrating how public awareness and knowledge of a species can reconstruct how we define charisma.

We hope you enjoy this edition of the newsletter!





*Cranes in flight,  
Credit: Margaret Pyke Trust*

## The crane helping to change policy and practice

Uganda's national bird, the Grey Crowned Crane, is known for its enigmatic dancing, bowing, and jumping. This graceful species, which stands proudly in the centre of Uganda's flag, is nothing if not charismatic. Cranes have an important role in Ugandan culture and folklore, but their status as a flagship species is also helping influence conservation policy and practice.

The population of Grey Crowned Cranes in East Africa has declined by over 80% in the last 25 years, largely due to increasing pressure on wetlands. As cranes are pushed into smaller and more marginal wetlands, to care for their eggs and young, they are increasingly disturbed by people, dogs, and livestock, and are unable to breed successfully. Chicks raised on fragmented, degraded wetlands are easily captured for traditional medicine use, domestication within Africa, or exported to captive facilities at zoos and safari parks. The population of Grey Crowned Cranes in Uganda (a stronghold for the species) is now believed to consist of only 10,000-20,000 individuals.

It is for all these reasons that the International Crane Foundation, partnered with the Endangered Wildlife Trust, is implementing projects that aim to restore key habitats and improve the status of these iconic species. While working to address threats to cranes, the partnership

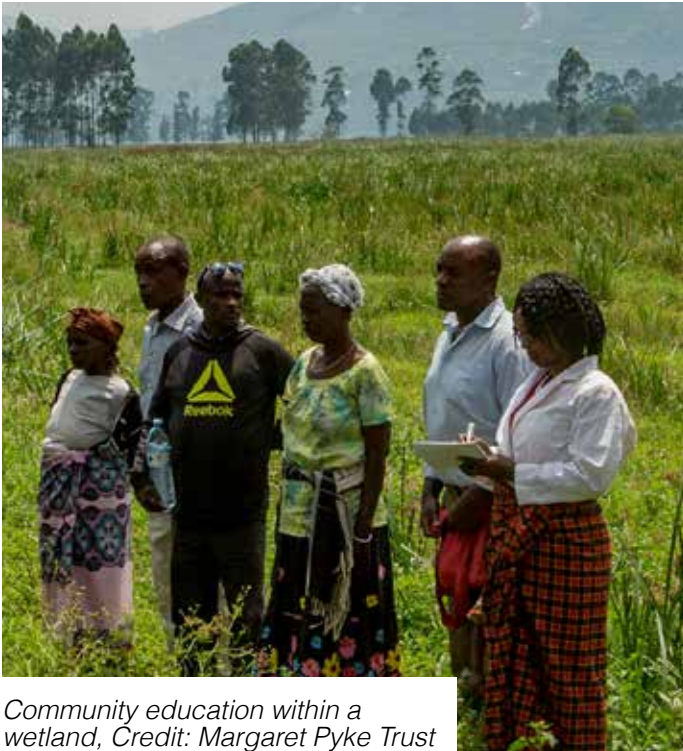
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While working to address threats to cranes, the partnership has found that these charismatic birds inspire actions to resolve broader conservation challenges that matter deeply to all people and address the universal challenges we face as a society

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has found that these charismatic birds inspire actions to resolve broader conservation challenges that matter deeply to all people and address the universal challenges we face as a society—water security, clean energy, land stewardship, biodiversity on agricultural lands, adaptation to climate change, and conservation-friendly livelihoods.

Uganda has initiated a Species Action Plan for Grey Crowned Cranes, seeking to reverse its declining population trend. Its status and national significance are part of the reason that Uganda is one of the few countries with such a plan. Charismatic species, like cranes, often have an advantage over species that are less well known, as securing funding and public support for their conservation is often easier.



Community education within a wetland, Credit: Margaret Pyke Trust

But there are broader environmental benefits to conserving crane species. Grey Crowned Cranes depend upon intact, healthy wetlands to nest and forage, thus the project's initiatives simultaneously benefit all species and people that rely on the ecosystem services provided by wetlands.

The Darwin Initiative project “Healthy wetlands for the cranes and people of Rukiga, Uganda” is one of many Population, Health & Environment, or PHE, projects. This is a conservation model defined by the Conservation Measures Partnership as “a multi-sectoral partnership approach to biodiversity conservation, human health, and sustainable livelihoods. PHE approaches are developed inclusively and equitably in response to local situations and the expressed needs of the people most closely linked to biodiversity conservation. PHE is intended to improve human health, particularly reproductive health, while empowering communities to achieve sustainable livelihoods, manage natural resources, conserve biodiversity, and maintain ecosystem services.”

What this means in practice is that the habitat restoration, alternative and sustainable livelihood interventions, and crane monitoring actions are integrated with the work of the Margaret Pyke Trust and Rugarama Hospital, to ensure the people of Rukiga receive the health services they have told the project partners that they want and need. A big part of this is removing the array of barriers to family planning they face, because couples report

having larger families than they would choose, putting more pressure on them, and their local environment.

Whilst PHE projects have been around for decades, few have focussed on flagship and culturally significant species. As this PHE project is specifically aimed to establish the conditions to enable the long-term conservation of a charismatic species, whilst empowering communities to conserve wetlands, it has been selected as a priority case study for the Conservation Measures Partnership's PHE learning initiative.

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**Grey Crowned Cranes are considered icons of Africa's grasslands and wetlands and are highly revered in Ugandan culture, thus they serve as a powerful flagship for securing wetlands**

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Grey Crowned Cranes are considered icons of Africa's grasslands and wetlands and are highly revered in Ugandan culture, thus they serve as a powerful flagship for securing wetlands. The pressures on Uganda's wetlands are an example of how a lack of livelihoods, compounded by larger families affect biodiversity and natural resources, impacting ecosystem health, human health, cultural identity, and poverty.

By integrating actions across multiple sectors, PHE can reach more people linked to biodiversity outcomes, engage more men in reproductive health, and more women in livelihood and natural resource management. PHE can, ultimately, achieve more significant and longer-lasting conservation outcomes than would likely occur without integration. When barriers to family planning are removed and contraceptive needs are met, women and girls can exercise their reproductive rights, leading to healthier timing and spacing of pregnancies, improved health of women and their children, and more time and energy to engage in education, conservation, and livelihood activities. When PHE projects include a charismatic species, like the crane, more people learn about and are interested in the approach, which can only benefit human and environmental health.

Written by Adalbert Aine-omucunguzi, Kathryn Lloyd and Claire Relton. For more information on project 27-002, led by Margaret Pyke Trust, please click [here](#).





Nesting Turtle returning to sea, Chagos Archipelago, Credit: Nicole Esteban & Holly Stokes

## Sea turtles and beach plastic in the Chagos Archipelago

Sea turtles are iconic and charismatic flagship species. Our project is centred around reducing the threats from plastic pollution on two turtle species that nest in the Chagos Archipelago. The Critically Endangered Hawksbill turtle (*Eretmochelys imbricata*) and the Endangered Green turtle (*Chelonia mydas*) play a key role in our efforts to communicate the issues of ocean health and to motivate volunteers to come back to clean nesting beaches of marine litter. Most of this litter is plastic bottles, flip-flops, and polystyrene. We therefore highlight two visible icons of this issue - the sea turtle and the plastic bottle - to raise awareness of the conflict between the two and the actions individuals can take to reduce the impacts of plastics on sea turtles.

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The atolls of Diego Garcia and Peros Banhos account for most of the nesting habitat in the archipelago, with over 70% of it used for Green and Hawksbill turtle nesting

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The Chagos Archipelago is regionally important for nesting sea turtles, with an estimated 56% of the coastline providing suitable nesting habitat. The atolls of Diego Garcia and Peros Banhos account for most of the nesting habitat in the archipelago, with over 70% of it used for Green and Hawksbill turtle nesting. Interestingly, the atolls also provide conditions for a relatively balanced hatchling sex ratio between males and females (which is influenced by environmental variables) and foraging habitat for immature turtles. This protected area makes a significant contribution to the conservation of these species across the whole region.

All islands of the archipelago face a constant influx of floating debris – most of it plastic from countries that border the Indian Ocean – mainly to the north and east of the territory. Turtles interact with plastic at sea and on beaches during nesting and feeding and our project explores the impact it has on nesting behaviour and nest conditions that may affect the development of hatchlings.

Our project has encouraged volunteers in Diego Garcia to engage with regular beach cleans, with the Adopt-a-Beach scheme assigning teams to specific beaches

to create a sense of ownership. Beach cleans are a great way to engage with a general audience while encouraging a hands-on contribution to managing a highly visible problem...but teams can be easily discouraged.

Each high tide brings a new influx of waste, and volunteers see their efforts undone. It can feel at times like a thankless, or even pointless, activity.

The key is to sustain a sense of optimism and purpose around these activities and our research has shown that at regularly cleaned areas of the beach overall quantities of waste remain lower than in areas less regularly cleaned. This might seem intuitive, but it is important to show that repeat beach cleans really do make a difference. When volunteers see first-hand a nesting turtle come into contact with beach waste, it provides further motivation to continue beach cleans.

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**volunteers is the universal affection held for sea turtles - the very definition of a charismatic species**

The inspiration for sustaining these commitments from volunteers is the universal affection held for sea turtles - the very definition of a charismatic species. Turtles are

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**Direct contact like this helps to create an affinity to these species and the marine environment, which in the case of Diego Garcia, has led to many volunteers switching from single-use plastic bottled water to refillable water bottles, for the sake of the ocean - and the turtles**

highly visible on Diego Garcia, particularly when females come ashore to nest, and resident juveniles can be seen foraging in shallow lagoon coves. Sea turtle biologists from Swansea University have worked in Diego Garcia for over ten years and have provided opportunities for hundreds of volunteers to help with surveys and tagging activities. This means many people have had the opportunity to see turtles close up and hear first-hand how important this area is for their conservation. Direct contact like this helps to create an affinity to these species and the marine environment, which in the case of Diego Garcia, has led to many volunteers switching from single-use plastic bottled water to refillable water bottles, for the sake of the ocean - and the turtles.

Written by Rachel Jones and Holly Stokes. For more information on project DPLUS090, led by Zoological Society of London (ZSL), please click [here](#).



*Plastic accumulation on a turtle nesting beach, BIOT, Credit: Nicole Esteban & Holly Stokes*





*Gourma elephants in Mali,  
Credit: Mali Elephant Project*

## Reinforcing local values to protect elephants

**How do you conserve an elephant population over a vast area, with a government that has no resources? This is the question that faced the Mali Elephant Project once the scientific studies had been completed and it was time to act on those findings.**

When discussing the elephant population with the local community, the general sentiment was: “we don’t want the elephants to disappear, because if they disappear, it means the environment is no longer good for us.” Further studies showed that the local people attached multiple values to the elephants. Not only were they a sign of a healthy ecosystem, but they dispersed seeds and spread nutrients across the land. They knocked seeds and fruits from high branches that women could gather and goats could eat. Even their dung was useful as a treatment against conjunctivitis.

Local communities were in awe of witnessing elephants’ social interactions and expression of a range of emotions - their joy when groups reunite, their apparent care for each other and particularly for their young. Community members reported seeing elephants covering their dead with soil and branches and standing vigil for several days. Others told of elephants constructing a causeway of wood and branches to help rescue another elephant stuck in mud. They even told of the creation story in which the Creator called all the animals together to give them a gift, but because the elephant came late there were no more gifts left, so each animal gave the elephant a piece of their own gift which explained why the elephant is so big and clever!

It became apparent there was a general understanding that every species has a right to exist and contributes

something uniquely to the ecosystem - a notion encapsulated in the word “baraka” or blessing. If a species is lost, the ecosystem is irretrievably diminished, and poorer in its ability to sustain life.

Elephants also attracted tourists (this was before the conflict that erupted in 2012) and the interest of outsiders which instilled local pride and a feeling that “if the elephants disappear, our area will no longer be special”. This local sense of connection between people and wildlife provided the seeds for the Mali Elephant Project’s approach which sought to find ways to reinforce local values around elephants.

With support from the project, local communities came together to collectively enact rules (based on traditional systems) to protect their resources (water, pasture, forests, wildlife) from overuse and set aside elephant habitat. Protected resources mean that more is available for local use and to support local enterprises, and overexploitation from outsiders is prevented - benefitting communities as a whole and allowing strong female involvement. These activities are improving livelihoods while promoting social cohesion and providing respected occupations in habitat protection to unemployed local youths at risk from recruitment by armed groups.

Twelve years on, this model of community-led natural resource management has expanded to many more communities in the Gourma and this small population of elephants still persists, despite having faced an onslaught of poaching between 2012-2016, a decade-long conflict and ongoing jihadist insurgency.

Written by Susan Canney and Sophia Leroy. For more information on project 23-022, led by The WILD Foundation, please click [here](#).



*Introduction of donkeys in herd to test predator-mitigation technique, Credit: WCS Paraguay*

## Harmonising production and jaguar conservation in Paraguay

The jaguar (*Panthera onca*) is the third largest wild cat in the world and has always been present in myths, beliefs, and legends of the native people of the Americas. For this reason, the species has historically been admired and respected in the cultural manifestations of the different ethnic groups and communities from northern Mexico to northern Argentina. As an apex predator, jaguars play a central role in maintaining natural landscapes (within and across protected areas and biological corridors). They're also at the heart of broader conservation efforts to ensure effective sustainable management of natural resources and the achievement of Aichi targets, as well as strengthening community livelihoods. Jaguars are an irreplaceable part of the Earth's natural systems, valuable indicators of healthy ecosystems and, as an umbrella species, they help advance broader biodiversity conservation objectives and the Sustainable Development Goals.

However, far from this admiration, jaguar populations continue to be subject of numerous threats including habitat change, hunting and even illegal trade. A combination of these factors have led jaguars to lose nearly 50% of their former range and this has already led to population declines and a regional extinction in

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two countries. The jaguar is globally considered as Near Threatened by the International Union for Conservation of Nature (IUCN) and protected against international trade (Appendix I, CITES). It was also classified as Critically Endangered in Paraguay by the Red List of Threatened Species, published in 2017 by the Ministry of Environment and Sustainable Development.

Nevertheless, the species is threatened by the high rate of deforestation in the Gran Chaco region (main Jaguar Conservation Unit in Paraguay), and the low effectiveness of protected areas in this biome. Based on this scenario, Wildlife Conservation Society (WCS) Paraguay have been working since 2012 in jaguar conservation strategies that incorporate the productive sector (cattle ranching) as an important part of the solution to human-cattle-jaguar conflict, aiming at the mitigation of the main threats to its survival and conserve this flagship species.



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The “Conservation and poverty alleviation through sustainable ranching in Paraguay” project, financed by the Darwin Initiative, has made a significant contribution in this sense, allowing WCS to work directly with more than 190 small producers and eight large ranchers in the Departments of Alto Paraguay and Boquerón, covering nearly 196,688 hectares of jaguar range in the Chaco region. Despite the veneration for jaguars in the past, nowadays they are seen as a threat to the main economic activities, and even to human security in this region of Paraguay. WCS is trying to change this scenario

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to one where jaguars can co-exist with people in human-dominated landscapes minimising the conflict between the species and cattle ranching. For that purpose, since 2019, producers have signed conservation agreements with WCS to seek sustainable alternatives to improve their production, including the implementation of non-lethal, low-cost anti-predation techniques such as use of lights and donkeys as livestock guards, in exchange for technical assistance from the project. Producers have also adopted improved management practices which will simultaneously increase production yields, avoid further horizontal expansion of their agricultural frontier, reduce deforestation pressure, and ultimately limit jaguar habitat loss and fragmentation.

As more sustainable practices for cattle production help protect core jaguar population strongholds and secure corridors between them, better land-use strategies and a more sustainable ranching production can definitely make a difference for jaguars in Paraguay and throughout their entire range.

Written by Maria del Carmen Fleytas, Belén Ortiz and Laura Villalba. For more information on project 26-013, led by Wildlife Conservation Society (WCS), please click [here](#).



Jaguar captured by camera trap at large cattle ranch part of Darwin project, Credit: WCS Paraguay



Harpovoluta charcoti,  
Credit: British Antarctic Survey

## The under-appreciated molluscs of Antarctica

Marine invertebrates make up over 92% of marine species, inhabiting a wide range of habitats and playing **essential roles in ecosystem services**. They are incredibly diverse and have a multi-stage life cycle, with many species having a free-swimming larval stage before they become a sessile benthic adult. Even though marine invertebrates, such as molluscs, are found in every zone of the water column from the intertidal to the deep-sea, they are often over-looked when it comes to conservation efforts. They tend to be under-represented in conservation campaigns on land and in the oceans, as they are over-shadowed by more charismatic or more familiar species that are favoured by the public.

Out of more than 142,500 species assessed for the International Union for Conservation of Nature (IUCN) **Red List of Threatened species**, there are only 1,886 marine mollusc assessments in comparison to ~34,000 terrestrial vertebrates. These assessments favour easily accessed molluscs such as those occurring in coastal or benthic habitats, leaving a lack of assessment for species found in habitats such as the deep-sea, or in the case of our new project, those found in Antarctic waters.

We recently completed assessments of global hydrothermal vent molluscs, including four from Antarctic waters, and are now looking to expand mollusc assessments in this region.

Assessing Antarctic molluscs is important as these animals are specially adapted to stable, cold environments, therefore any warming caused by climate change could have significant detrimental effects. Our project, "Red Listing can protect UK Overseas

Territory marine biodiversity", aims to assess Antarctic and Subantarctic marine molluscs for the Red List considering the threat of climate change. The current under-representation in conservation efforts leaves these organisms vulnerable when the threats of climate change are imminent.

In recent years, molluscs have been gaining more media attention, spiking the public's interest in these unique animals. One such mollusc that attracted significant media attention was the **Scaly-foot snail** (*Chrysomallon squamiferum*). This interesting-looking creature is endemic to hydrothermal vents, and has hundreds of dermal sclerites on its foot that can be covered in iron sulphide. This unique gastropod featured on the Red List's "Amazing Species" page, showing that molluscs can, in fact, be charismatic.

Public perception of what makes a species charismatic and interesting has changed over the last couple of years, including the realisation of the **important roles marine molluscs play** in marine and human life. Using pictures along with our assessments will show the public the charisma and diversity of Antarctic molluscs, from pteropods that swim through the pelagic zone known as "sea butterflies", to the sea snail **Harpovoluta charcoti** which has an anemone living on its shell for defence! Completing Red List assessments for these species will communicate their extinction risk in the face of climate change and the need to implement conservation measures to mitigate these threats on marine invertebrates.

Written by Aoife Molloy and Julia Sigwart. For more information on project DPLUS146, led by Queen's University Belfast, please click [here](#).





*Kanyenja beehive fence group, Credit: STEP*

## Restoring a Tanzanian elephant corridor for coexistence

Restoring ecological connectivity between ecosystems - wildlife or habitat corridors - can be as important as restoring degraded habitat within those ecosystems. There are many ecological reasons for this, including seasonal resource needs of wildlife, genetic connectivity to ensure the long-term viability of populations, and buffering against ecological change induced by climate change. But there are also critical reasons related to improving the security and livelihoods of the human communities living adjacent to these ecosystems.

An example of this is in the Kilombero Valley of southern Tanzania, where elephants and other wildlife have traditionally, for thousands of years, crossed the fertile lowlands of the valley between the Selous ecosystem and the Udzungwa Mountains, a global biodiversity hotspot. Over the last 40 years, the corridors that the elephants use have been converted from forest and woodland into farmland.

“ Over the last 40 years, the corridors that the elephants use have been converted from forest and woodland into farmland

This connectivity remains important for elephants, as evidenced by the regular attempts that they still make to

complete the journey. However, this has led to increasing conflict with farming communities along the route, resulting in destruction of crops and ongoing threats to human and elephant life.

Southern Tanzania Elephant Program (STEP), supported by the Darwin Initiative and in collaboration with the Tanzanian Government, is working with communities to restore an elephant corridor as part of the long-term solution to enhance human-elephant coexistence.

Since late 2018, the STEP team, including long-time members of the local community, have been engaging the three corridor villages in extensive consultations, discussions and education on the benefits of a 12km long, fenced, community-managed corridor that will funnel elephants across the valley and prevent them from entering farms and areas of local settlement, including schools. The corridor will be approximately 200m wide and is designed to link Magombera Nature Reserve, part of the Selous ecosystem, with the Udzungwa Mountains National Park, avoiding all houses. Three hundred farmers have agreed to financial compensation and the results of the Chief Government Valuer's assessment of the small farm plots that fall within the corridor area, and the compensation payments are due to begin in March 2022.

Following the finalisation of the compensation agreements, a joint village land use plan will be completed through a participatory land use planning





Members of Kanyenja Village Savings and Loans Association, Credit: STEP

process to enshrine the corridor in law for perpetuity. Community representatives will sit on the corridor management committee, and Village Game Scouts are being recruited to monitor and protect the corridor. In addition, STEP has worked with these communities to create farmers' cooperatives that manage beehive fences, which help to keep elephants out of the farms and have the potential to increase income through the sale of honey. Village and Savings Loans groups supported by STEP also enable farmers to take out loans to support farming activities and diversify their income streams, offering safe access to credit for the first time for many individuals. The corridor is anticipated to have ecotourism potential, and will include Tanzania's first purposely built elephant underpass, funded by the European Union, USAID and the Darwin Initiative.

When we began holding meetings, consultations and focus group discussions, it was difficult at first for some community members to conceive of an elephant corridor across farmland. However, two-and-a-half years into the project, the great majority of the local farmers are comfortable with the compensation offered by the Government to create the corridor. There is recognition

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**There is recognition and hope that the corridor will help to reduce crop losses in surrounding farms, and increase security for people going about their daily lives**  
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and hope that the corridor will help to reduce crop losses in surrounding farms, and increase security for people going about their daily lives.

The Tanzanian government has in recent years demonstrated a strong commitment to restoring wildlife corridors between ecosystems, and a national corridor action plan assessing and prioritising over 60 corridors around the country will soon be published. By restoring the Kilombero Elephant Corridor, these communities will be leading the way and setting a positive example for corridor and habitat restoration across the country.

Written by Trevor Jones and Joseph Mwalugelo. For more information on project 26-007, led by Southern Tanzania Elephant Program (STEP), please click [here](#).





Ranger patrol in Mts Iglit Baco Natural Park, Credit: Emmanuel Schutz

## Creating a sustainable landscape for the Taobuid and the Tamaraw

The Philippines is one of the world's 17 mega-diverse countries, harbouring an extraordinary variety of endemic fauna and flora, including the emblematic Tamaraw (*Bubalus mindorensis*), a Critically Endangered wild dwarf buffalo that occurs only on the island of Mindoro. Since January 2021, Re:wild has been working with local NGO the D'Aboville Foundation, protected area authorities and Indigenous Taobuid people to implement the project "*Creating a sustainable landscape for the Taobuid and the Tamaraw*". This aims to secure the long-term survival of this much-loved animal, while securing the customary rights of those who share their living space with it.

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The Tamaraw is a well-known and emblematic species across the Philippines, especially in its island home of Mindoro

The Tamaraw is a well-known and emblematic species across the Philippines, especially in its island home of Mindoro. Its imposing statue greets arrivals at the island's main airport, it is celebrated every October by Presidential proclamation during Tamaraw month, and the species has been declared as the National Land Animal.

Mounts Iglit-Baco Natural Park, in the centre of Mindoro, hosts the majority of the world's last Tamaraw. The Park shares part of its territory with the ancestral domain of the Indigenous Taobuid people, who have a complex cultural relationship with the Tamaraw. Thanks to observance of a no-hunting area by the Taobuid, and to the presence of dedicated rangers, the Tamaraw population of the Park has increased to around 400 animals. However, decades of commercial logging, trophy hunting, cattle ranching, and grassland burning have heavily degraded the ecosystem, limiting expansion of the Tamaraw population and challenging the sustainability of traditional Taobuid land-use systems. The area occupied by the Tamaraw (just 3,000ha) is too small for numbers to increase any further.

This Darwin Initiative supported project is designed around a bio-cultural landscape approach, aiming to restore and improve overall environmental conditions and enable the Tamaraw population to increase through integrative, participatory actions.

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The annual grassland burning used for 20 years to facilitate the annual Tamaraw headcount, is being phased out and replaced by new, less destructive census methods. A new habitat restoration plan will promote recovery of the natural vegetation and enrichment of local biodiversity. Around the ranger base camp the project is establishing a sustainable, permaculture-based model of farming and habitat



restoration, providing a reliable food supply for the rangers, regenerating surrounding degraded land, and demonstrating innovative practices that Taobuid communities can choose to adopt on their own land. Concurrently, a participatory socio-agro-ecological study is building a better understanding of the advantages and constraints of the traditional practices of the Taobuid in the context of current environmental conditions.

In February 2022, after a year of consultations, Taobuid leaders, the National Commission on Indigenous Peoples, and the D’Aboville Foundation signed a tripartite agreement to support the long-sought official Taobuid Ancestral Domain claim. The goal is to integrate the zoning system and regulations of the protected area with the traditional governance system of the Taobuid, working through a culturally sensitive process based on the principles of free, prior and informed consent towards agreement of an enlarged safe habitat area for Tamaraw and other threatened species.

All these activities have been undertaken in the last 15 months despite the uncertainties, restrictions and delays imposed by the COVID-19 pandemic, through the

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These actions will help ensure the long-term future of this charismatic and much-loved species, providing a larger safe zone for it to thrive within a regenerative ecosystem that benefits and sustains both its traditional owners and the biodiversity it supports

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patient, participatory and resourceful work of the project team, the personnel of the Park, the Taobuid people, and local and national authorities. If successful, these actions will help ensure the long-term future of this charismatic and much-loved species, providing a larger safe zone for it to thrive within a regenerative ecosystem that benefits and sustains both its traditional owners and the biodiversity it supports.

Written by Mike Appleton, Christina Wurschy Davies and Emmanuel Schutz. For more information on project 27-003, led by Re:wild, please click [here](#).



*Tamaraw group in Mts Iglit Baco Natural Park, Credit: Emmanuel Schutz*





*Cañuma vicuña capture,*  
Credit: Rob Wallace

## Encouraging results in the sustainable management of vicuña in Apolobamba

The results of vicuña management carried out in the Apolobamba National Integrated Management Natural Area during 2021, reflect the significant efforts made by the management communities and park rangers, and their commitment to the conservation and protection of the species.

The recent 2021 census shows a registration of 13,692 vicuñas in August demonstrating a 7% growth in the population compared to the last census in 2019. The count involved 99 people (94 men and five women) from 18 communities, including 28 park rangers and nine technicians from support institutions. All of them were previously trained for the development of the activity.

"There is more commitment from the communities, in addition to the efforts of the park rangers," explains Humber Alberto, who is responsible for capacity building in integrated use and monitoring of the vicuña in Apolobamba. Approximately 4,000 vicuñas were sheared during the fibre shearing season, which took place between September and November 2021. Last year they obtained 700kg of raw fibre, which was 200kg more than that was sheared in 2019 – this increase is particularly beneficial for the communities who sell raw fibre for around \$300/kg.

The management of vicuña fibre is a social community activity, and involves men, women and youth from local communities taking part in various roles. Throughout the 65 herding, capturing, and shearing activities that were carried out in 2021, between 80 and 100 people from Apolobamba's 17 vicuña management communities participated.

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**The management of vicuña fibre is a social community activity, and involves men, women and youth from local communities taking part in various roles**

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Mechanical shearing of vicuñas has also proven to be more efficient and provides greater benefits than traditional shearing with scissors. It favours obtaining a more uniform fibre, takes less time, reduces stress on the animals, and allows better fibre yields. Its use in Apolobamba grew by 70% in 2019, and in 2021, 90% of the vicuñas were sheared mechanically. Thirty percent of the vicuña management communities have trained shearers, and the expectation for the future is to continue training shearers so that they can consolidate their ability and technique.

"With the machine, the cut is more uniform and the fleece remains intact, contributing to a better and higher



commercial value. However, this technique requires developing dexterity, precision and a lot of patience, knowing the animal's body and knowing how to handle the machine on the body without causing injuries. The minimum fleece depth required for marketing the fibre is 2.5cm," explains Alberto.

Five documents related to the sustainable use of vicuña were also published as part of the activities. These documents can be viewed on the [WCS Bolivia website](#).

These results were possible thanks to the joint work of the Regional Association of Vicuña Management Communities of Apolobamba, the park rangers of the Apolobamba National Integrated Management Natural Area at the local level; the National Protected Areas Service, the General Directorate of Biodiversity and Protected Areas, and the Community Association for the Commercialization of Vicuña Fibre in Bolivia at the national level. The Wildlife Conservation Society provided technical support within the framework of the project "Biodiversity conservation, vicuña health and local livelihoods in Apolobamba, Bolivia", financed by the Darwin Initiative.



*Carrying out the vicuña census, Credit: Humber Alberto*

Written by Cristina Pabón, Humber Alberto and Oscar Loayza. For more information on project 26-021, led by Wildlife Conservation Society, please click [here](#).



*Cañuma vicuña precerdada (a fleece preparation stage), Credit: Rob Wallace*





Native grass Poaceae,  
Credit: Livosoa Randriamanalina

## The duller of plants? How grasses help feed Madagascar and protect it from fire

The grass family Poaceae includes wheat, rice, maize and sugar cane. Grasses feed the world but are one of the least charismatic plants. Their tiny flowering structures mean that to a casual observer, all grasses look similar, and Botanists can often miss out the grasses (particularly when working in the tropics), not least because microscopes and specialist literature are required to dissect them.

Despite the vast area occupied by savannah and grassland in Madagascar (65% total land area), these landscapes are neglected and considered as a secondary vegetation from primary forest. However, recent studies in Itremo Protected Area and Isalo National Park, in Madagascar's Central Highlands, have unearthed the exceptional richness of this vegetation and discovered that the main component of this rich biodiversity is native and endemic grass species.

Fire is one of the principal threats to forests and biodiversity in many of Madagascar's Protected Areas. Fires are lit in grasslands during the late dry season to stimulate forage and renew cattle pastures but they can quickly become out of control and penetrate forest boundaries. As a result, they are often difficult to isolate and manage. Such fires have occurred in Ankapobe and Itremo which unfortunately undermined community-led forest conservation efforts.

The Zebu cattle (*Bos indicus*) are very important for the Malagasy people and are considered a cultural

symbol, rural bank, tradeable product, working animal and provide fertilisation for agriculture. Cattle from Madagascar's Highlands are undernourished and calving less than once a year due to food insufficiencies. To solve this issue, the project has suggested feeding the Zebu with crop residues and sorghum.

This project seeks to use native grass forage management to feed people and protect forests or "Harena Voajanahary sy Kijana mamokatra" in Malagasy. Financed by the Darwin Initiative, this project will be carried out in three Central Highland Protected Areas in Madagascar - the Itremo massif, Ibity and Ankapobe natural reserve. These sites were chosen due to the dominance of grassland and savannah, and shared challenges relating to pasture fire management and poverty.

This new project tries to bring a modern approach to reduce fires within Protected Areas, improve livestock nutrition and that of the local population living around Protected Areas and valorise native forage and grassland by integrating botanical knowledge, grassland ecology, agricultural science, and fire management expertise. This new approach will make it possible to (i) increase milk production and the calving rate of Malagasy Zebus, (ii) enhance the value of native forage grasses and (iii) protect the forests through improved fire management.

Written by Nanjarisoa Olinirina. For more information on project 28-012, led by RGB Kew, please click [here](#).



*The rich diversity of sweet potatoes found in the Philippines, Credit: Domingo Milano*

## Restoring agricultural biodiversity in coastal areas

The restoration of coastal ecosystems can improve livelihoods, reduce poverty, and reduce risks from climate change. However, coastal development projects have provided inadequate attention to the restoration of agrobiodiversity and its related nutrition and food security contributions. Regenerative agriculture and agrobiodiversity conservation can generate meaningful outcomes not only for farming communities, but also for fisherfolk in the Philippines and elsewhere. Local food systems are notably enriched by these forms of agriculture which are low-carbon and sustainable by design.

To demonstrate the fusion of coastal ecosystem restoration and agrobiodiversity conservation, the International Institute of Rural Reconstruction (IIRR), the Zoological Society of London, and the municipality of Guinayangan, Quezon have partnered to rehabilitate and restore mangrove areas and associated coastal agroecosystems in its 14 coastal villages. This three year project started in September 2021 and is supported by the Darwin Initiative. Current project interventions include securing and introducing a wide range of root and tuber crops, legumes, and fruit trees. In the second year, native breeds of small livestock will be introduced to conserve them while providing women opportunities to improve their livelihoods.

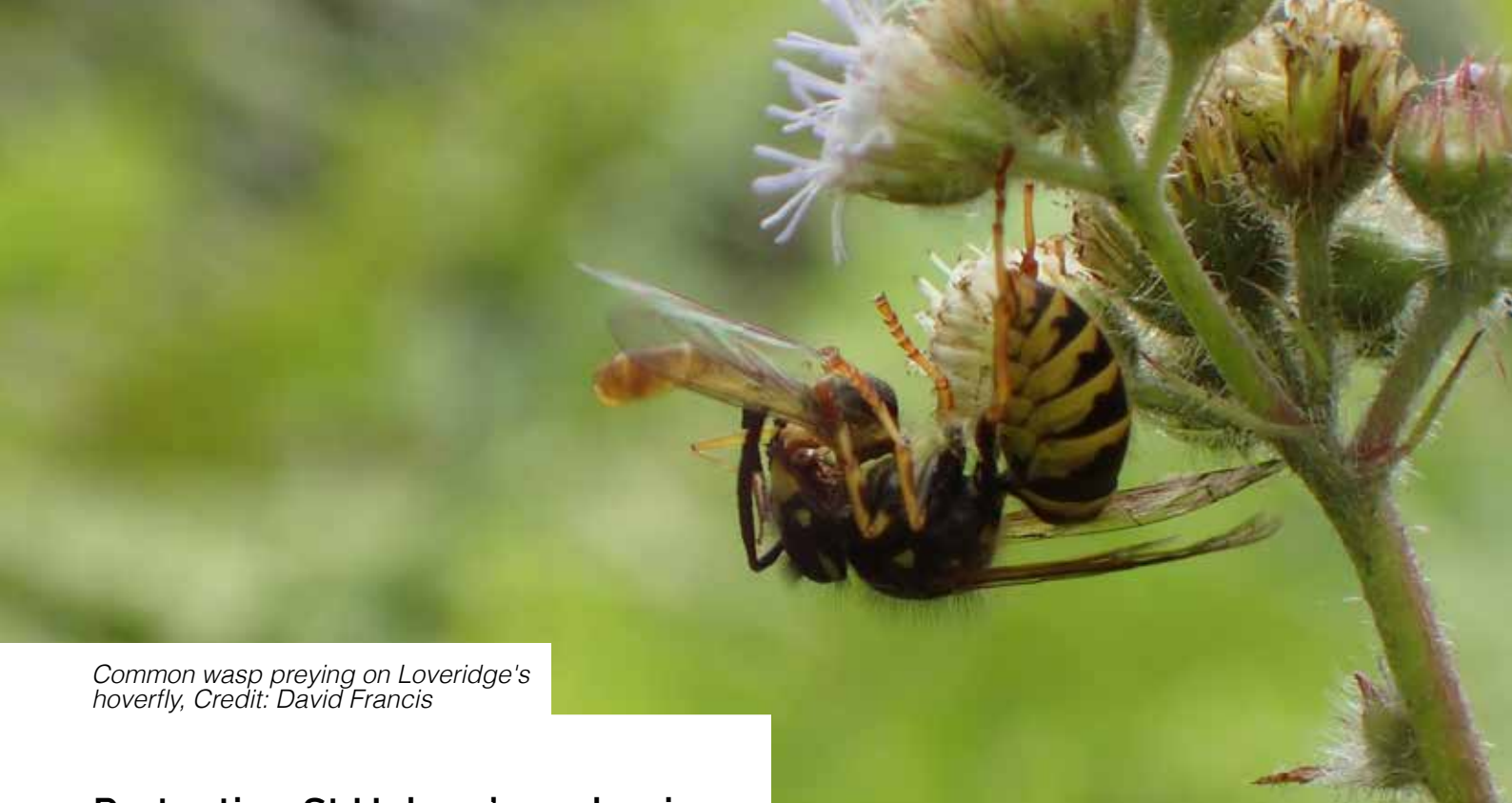
The project hopes that the current mono-cropped, coconut-based homestead areas will be transformed into more diverse, systems featuring multiple layers of trees and other crops. This biodiverse vegetation is expected to support the nutritional needs of the community and will help serve as wind breaks or bio-shields while helping

sequester carbon. Enhancing both inter- and intra-species diversity has been the focus in the first year, while local communities are expected to join in efforts to restore and conserve mangroves in the second year of project implementation.

The goal of enriching coastal agricultural biodiversity using multiple varieties of different food crops can generate benefits over the short term. The International Institute of Rural Reconstruction has already introduced several varieties of mung bean and peanut varieties from other parts of the Philippines to Guinayangan. These protein-rich crops grow well in sandy soils, even under moderately saline soils such as those found in the coastal barangays or villages. Banana varieties including lakatan and latundan, considered locally as the best banana varieties, are performing very well, with more planting materials to be delivered to ensure that the villages have stocks to share with others. Similarly, cassava and sweet potato varieties were secured from the country's germplasm collection, the gene banks of local universities and research stations. In the next few months, black and red rice plus violet and white taro (see photo) will be sourced from other coastal villages within the same municipality for wider distribution. The restoration and subsequent conservation of agrobiodiversity species does not have to be such a complex matter, since what farmers are doing in another similar agroecology can provide useful guidance on what works and what does not. All that is needed is to build on local knowledge and biodiversity resources.

Written by Julian Gonsalves and Darwin John Raymundo. For more information on project 28-021, led by International Institute of Rural Reconstruction (IIRR), please click [here](#).





Common wasp preying on Loveridge's hoverfly, Credit: David Francis

## Protecting St Helena's endemic species against invasive invertebrates

St Helena has over 400 endemic terrestrial invertebrate species a quarter of which are found exclusively in the Cloud forest – such as the blushing snail (*Succinea sanctaehelenae*) and Golden sail spider (*Argyrodes mellissi*). Hundreds of endemic species now fall under the International Union for Conservation of Nature (IUCN) Red Listing category from Near Threatened to Critically Endangered, like the Spiky yellow woodlouse (*Pseudolaureola atlantica*), which can also only be found in the Cloud forest. One of the largest threats to these native species are invasive invertebrate species.

Invasive invertebrates have been accidentally introduced by human activities like hitchhiking on containers or arriving on their own using the wind current. Invasive invertebrates have a negative impact on the island's unique endemic flora and fauna by preying on other invertebrates.

The Darwin Plus funded invasive invertebrate project will facilitate endemic invertebrate recovery and re-establish their associated ecosystem function, by trialling and establishing invasive invertebrate control methods. The projects targeted invasive species are the Common wasp (*Vespula vulgaris*), the Big-headed ant (*Pheidole megacephala*) and the Springbok mantis (*Miomantis caffra*).

The Common wasp and Springbok mantis are generalist predators and they predate on any invertebrates. They are found island-wide, with a high abundance

of the Common wasp located in the Cloud forest. Evidence has shown that the Common wasp preys on endemic invertebrates like the Loveridge's hoverfly (*Sphaerophoria beattiei*).

The Big-headed ant is a common household pest and feeds on living and dead invertebrates. The Big-headed ant is believed to be a major threat to the existence of endemic invertebrates, such as the Giant earwig and is known to attack endemic Wirebird eggs while hatching.

Peak dale is an endemic Gumwood habitat, with over 50 endemic invertebrates recorded. It was observed that the Big-headed ant nests in the old Gumwood trees, this could possibly lead to the Gumwood trees and the endemic species that depend on them (such as the weevil) being threatened.

In 1991, the invasive Jacaranda bug (*Insignorthezia insignis*) was first identified infesting the Gumwoods, which caused over 100 trees to die. However, in 1993 the White-spotted ladybird (*Hyperaspis pantherine*) was introduced as a bio-control and by 1995 the number of Jacaranda bug had declined saving the Gumwood trees from extinction.

Suppressing invasive invertebrates like the Springbok mantis, Big-headed ant and the Common wasp will protect and restore the endemic invertebrate's population and habitats for future generations.

Written by Christy-Jo Scipio-O'Dean. For more information on project DPLUS104, led by St Helena National Trust (SHNT), please click [here](#).



Wilkins' bunting, Credit: Andy Schofield

## Saving Tristan's only native tree and its associated unique buntings

The Tristan da Cunha islands are home to seven landbird species, all of which are found nowhere else in the world. One such species, the Wilkins' bunting (*Nesospiza wilkinsi*), is under threat and without urgent intervention could be facing the first global extinction on British soil for over 60 years.

Much like the famed finches of the Galapagos, the endemic large-billed Wilkins' buntings have evolved to be highly specialised: their thick bills can crack open the fruits from the *Phylica* trees, Tristan's only native tree. As such, they are largely reliant on the *Phylica* fruits and all of the Wilkins' population can be found in Nightingale's *Phylica* forest, making it one of the rarest birds on the planet. But their population is at risk.



**Much like the famed finches of the Galapagos, the endemic large-billed Wilkins' buntings have evolved to be highly specialised: their thick bills can crack open the fruits from the *Phylica* trees, Tristan's only native tree**



Tristan da Cunha's only native tree, *Phylica arborea*, has been severely impacted in the last decade by the invasive scale insect, *Coccus hesperidum*. The insect infests and feeds on the sap of the trees, producing a honeydew which encourages the growth of sooty mould that smothers and eventually kills the tree. This tiny insect, and two hurricanes that hit the island in quick succession in July and November 2019, have led to large swathes of forest being decimated across Tristan, Nightingale and Inaccessible Island World Heritage Site. It has been estimated that 80% of the forest has been lost on Nightingale as a result of these catastrophic events, leading the International Union for Conservation of Nature (IUCN) to change the Red List rating for the tree species to Endangered in 2020. The knock-on effects of this forest loss are staggering with only an estimated 20-30 individuals remaining. The IUCN have since changed their listing from Endangered to Critically Endangered.

An urgent intervention was needed and the Darwin Plus funded project "Saving Tristan's only native tree and its associated unique buntings" aims to do just that. In close collaboration with international experts and Tristan's Conservation Department, a biocontrol agent (*Microterys nietneri*) has been safely tested, transported from the UK





Decimated *Phyllica* after storm, Credit: Andy Schofield

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To restore the forest ecosystem, a community nursery of scale-free *Phyllica* trees is being established on Tristan with the hope that, in a few years’ time, healthy trees can be planted in areas where they have previously been lost

to Tristan and has been successfully reared on the island. It was a monumental effort to get the small parasitoid wasps to the island - the journey taking three weeks and changing hands five times before reaching Tristan. Only 16 wasps survived the epic voyage but thanks to the attentiveness and devoted care given by Kirsty Repetto (Tristan Conservation Department), the wasps have flourished. Two releases have been possible in heavily infested stands of *Phyllica* on Nightingale Island. However, it is too early to draw any conclusions on the impact of the wasps as it will take some time for them to become established and more releases will be needed, but anecdotally, the team on Tristan have reported far

fewer scale insects in the two release sites suggesting a very positive impact.

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To restore the forest ecosystem, a community nursery of scale-free *Phyllica* trees is being established on Tristan with the hope that, in a few years’ time, healthy trees can be planted in areas where they have previously been lost. Around 50 young *Phyllica* trees have already been planted on Nightingale this year thanks to the Conservation Department taking measures into their own hands prior to the project starting. Project funding has provided much needed equipment and increased capacity on island to upscale this vital project. A further 500 propagated seedlings are now growing in a heated vitopod (heated greenhouse) on the island thanks to the careful work of the Agriculture Department. These too will be planted out across the islands in the final year of the project. Not only will this restore the forest ecosystem and its associated biodiversity, but as *Phyllica* trees are known to fruit within four years of being sown, it also provides hope for the future of the endemic buntings.

Written by David Kinchin Smith and Ashleigh Atkinson. For more information on project DPLUS102, led by RSPB, please click [here](#).



# The Seabird Sentinels Project

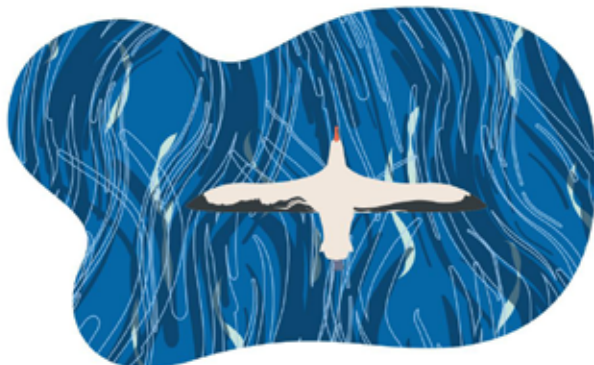
Seabirds are one of the most threatened groups of vertebrates in the world. Out of 362 species of seabirds, 43% are listed as either globally threatened or near threatened by the International Union for Conservation of Nature (IUCN), and 56% of the species with a known trend are in decline.



Many seabirds are natural scavengers, attracted to food made available by fisheries. But this poses a deadly threat, particularly hooked lines reaching up to 100km in length used by longline fishing vessels. When the line is set the birds dive down and feed on the bait, but sometimes they swallow the hook and are drowned as the line sinks.

Since the 1970s, the breeding population of South Georgia's wandering albatrosses has declined catastrophically due to bycatch in longline fisheries.

The Seabird Sentinels project aims to help identify the bycatch hotspots and the nations fishing in those areas.



This is a particular challenge for wandering albatrosses due to their extensive foraging ranges, they are at potential risk from multiple fisheries across national and international waters.



During the Seabird Sentinels project, scientists fitted wandering albatrosses with loggers that both recorded the birds' GPS positions and detected radar transmissions from nearby vessels. This set of data was matched against positions individual fishing vessels identified by Global Fishing Watch, which uses the Automatic Identification System (AIS) to track their movements.



Tracking wandering albatrosses of different sex and ages showed the varying extents to which the birds overlapped with different fleets across their range. They found that albatrosses, particularly breeding adults during incubation and in mid-to-late chick-rearing, were at the highest risk of interacting with a vessel at the Patagonian Shelf and Subtropical Convergence.

Researchers analysed the tracks of 251 birds, of which 55% involved encounters, and 43% showed close attendance at fishing vessels using different gear types and flagged to multiple fishing nations.



Previous studies at wider scales have shown that wandering albatrosses from South Georgia overlapped particularly with Taiwanese and Japanese pelagic longline vessels. However, this new, finer-scale study found the greatest overlap was with Korean vessels, and demersal longliners from various nations.

All these results highlight how important it is to engage with multiple stakeholders, including fisheries managers, operators and crew to safeguard the future of these iconic seabirds.

Written by Richard Phillips and Ana Bertoldi Carneiro. Designed by **Hannah Whitman**. For more information on project DPLUS092, led by British Antarctic Survey and BirdLife International, click [here](#).





*Dancing cranes, Uganda,  
Credit: Margaret Pyke Trust*

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### **The Darwin Initiative Secretariat (Defra)**

The Darwin Secretariat is based in Defra and includes Doug Gibbs, Ben Yexley, Elliott Miller, Andrea Hodgson, Serene Hargreaves and Chelsea Goodwin.

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This newsletter is produced quarterly. To include an article on your project please contact us at

**[darwin-newsletter@ltsi.co.uk](mailto:darwin-newsletter@ltsi.co.uk)**

Funded by the UK Government, The Darwin Initiative provides grants to support developing countries to conserve biodiversity and reduce poverty, with Darwin Plus focusing its grants on the natural environment and climate change in the UK Overseas Territories. Since 1992, the Darwin Initiative and Darwin Plus have committed over £196 million to 1,319 projects in 159 countries.