



Darwin News

Newsletter of Defra's Darwin Initiative
October 2011



Welcome to another issue of the Darwin Initiative newsletter. We have a bumper issue for you this quarter. All the Darwin projects were evidently very busy over the summer and have lots of excellent news stories to share with us all.

Here at the Darwin Initiative we are in the lull before the storm of stage 2 applications which will hit us later this month. The applications received at stage 1 really were excellent and it was a sad job to say no to some of you. If you were unsuccessful at stage 1 perhaps you might wish to consider submitting a Scoping application or a Challenge Fund application. See the article from Buglife on St Helena to see what you could do with Challenge Fund money. Check out the details on Darwin website (darwin.defra.gov.uk) and via [Twitter@Darwin_Defra](https://twitter.com/Darwin_Defra).

Developing wildlife forensic capacity for ASEAN biodiversity conservation (17-019)

Forensic science is a crucial tool for investigating crime, including crimes which deplete biodiversity. The specialism of wildlife forensics shares many qualities with the field of human forensics, but requires specialist knowledge. It is underdeveloped and underutilised in most nations around the globe, but a particular need is apparent in South East Asia, where a large proportion of illegal wildlife trafficking occurs. This project is entering its third year and has so far made significant improvements in the capacity of the ASEAN region to use forensic science to investigate wildlife crimes.

In August 2010, UK wildlife forensic scientists Drs Rob Ogden and Ross McEwing launched the ASEAN Wildlife Forensics Network with a training workshop held in Kuala Lumpur, Malaysia. The network connects previously



Photo credit: TRACE Wildlife Forensics Network

disparate practitioners from the ASEAN region and is centred around the dedicated website www.asean-wfn.org. Twenty-five enforcement officers from nine countries attended the workshop and learnt how to take evidential samples while minimising contamination, and ensuring that chain-of-custody was intact. They were provided with evidence collection kits and advised on how to replicate these to the necessary standards in their own countries. Ten laboratory scientists were trained in DNA identification techniques relevant to ongoing investigations and their national requirements. The enforcement officers and scientists were carefully selected to ensure that capacity was being established at an operational level among professionals with responsibility for investigating wildlife crimes in each ASEAN member state.

The laboratory-based scientific training was advanced further in June 2011 when four scientists received intensive training for three weeks at the laboratories of TRACE Wildlife Forensics Network, located in the UK.

The scientists learnt how to develop and apply DNA profiling techniques to identify individual rhinos and tigers. Rhino poaching in Africa has recently increased substantially, driven by demand for horns for

use in Asian medicines. Tigers continue to be persecuted for their pelts, bones and other derivatives, to the extent that fewer than 3000 are now believed to exist in the wild globally. The ability to match traded products back to individual animals provides valuable intelligence into trade routes and poaching patterns, as well as delivering evidence to prosecutions relating to each seizure.

The project has also delivered an exciting development in the field of forensic science, by creating a new method to test for gender in tigers. The work, which is co-authored by scientists from three ASEAN nations and TRACE, has been accepted for publication in the journal *Conservation Genetic Resources*, and represents what can be achieved through combining regional scientific expertise. The coming months should see reports of cases where the training delivered has been used in real-world

investigations, and the project team hopes to be able to report some of these in subsequent newsletters.

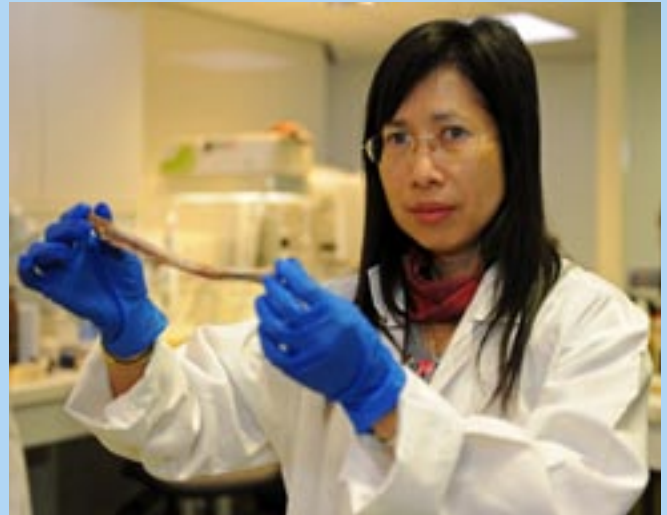


Photo credit: TRACE Wildlife Forensics Network

Ecuadorian Communities Draft Marine Reserve Management Plan (17-017)

On 12th September 2011 Daniel Ulloa, president of the Association for the Development of Galera San Francisco (ADGSF), formally presented to the Ministry of the Environment (MoE) the draft management plan for their Marine Reserve. It was the culmination of two years of concerted effort, led by the Ministry, the Association and the Nazca Institute for Marine Research (Nazca), supported by a variety of organisations. With Darwin Initiative funding since April 2009, Fauna & Flora International (FFI) and key partner, Fundación Futuro Latinoamericano (FFLA), have provided guidance and facilitation in crucial areas: the governance system, spatial management and preferential access for local communities.

Bringing together concepts of local ownership, flexible regulations and the use of both scientific and local knowledge, the proposed GSFMR participatory Management Plan breaks new ground for mainland Ecuador marine protected areas, in both process and content.

“This plan incorporates best practices from Galapagos and internationally, and is being watched as a potential model for other countries in the region”, said Vincent Gravez, Project Manager for FFLA.

A hallmark of the Management Plan is its establishment of a participatory zoning scheme including No Take Zones and also nearshore zones where adjacent communities will have both preferential access to fisheries resources and additional management responsibilities through an agreement with the Ministry of Environment.

“One of the best things about this process is that the local communities decided the extent and location of each category of zone on their own, in a series of participatory meetings” explained Sebastian Paredes, from the Ministry of Environment Regional Office for Esmeraldas. “So the areas that have been restricted were decided by the communities, rather than being imposed by the authorities, and that builds legitimacy.”

The Management Plan could not come at a better time for the Marine Reserve, which is struggling with the impacts of overfishing, incursions of industrial bottom-trawling vessels, and sedimentation of key breeding areas due to inland deforestation.

With regard to governance, the proposed Management Plan defines a participatory decision-making structure, centred on a multi-sectoral Management Committee, where decisions will be made by consensus, through a process that enables a range of stakeholders to have their say. In the event that the Management Committee cannot come to agreement, the Ministry of Environment will have the final word. Thus, if there is no local consensus, the Ministry will step in and either facilitate an agreement or



Photo credit: S Luna

make the decision themselves.

“This plan is very important to our work here” said Daniel Ulloa. “It has been developed through a process that has been positive and fully participatory, and now the real challenge begins - implementation.”

Looking forward, the plan will undergo a final round of reviews within the Ministry of Environment before its formal approval, hopefully well before the end of the Darwin Initiative project.

Giving a central role to local civil society organisations in implementing the Management Plan, alongside central and local government agencies, requires a well managed process of dialogue and negotiation, as well as building confidence and capacity on all sides. Successful implementation of the model at Galera San Francisco can pave the way for many more community-driven initiatives in Ecuador and region-wide.

Saving St Helena’s threatened invertebrates – conservation efforts gather momentum (EIDCF004)

Watching a conservation apprentice energetically wielding a contraption resembling a bazooka raised numerous eyebrows and not a little mirth in the assembled field party. But it was all done – seriously – in the name of trialling new sampling techniques, and introducing the next generation of conservation workers to invertebrates



Photo Credit: E Thrope



Photo Credit: E Thrope

This was just one of the activities that provided first-hand experience of St Helena for specialists from the UK charity Buglife (The Invertebrate Conservation Trust) in April 2011. Supported by the Darwin Initiative’s Challenge Fund, this scoping project aimed to develop links with the St Helena National Trust, the island government’s conservationists and other local partners. Together they produced a framework for conserving invertebrates, the ‘Cinderellas’ of St Helena biodiversity.

The UK Overseas Territory of St Helena has been called the ‘Galapagos of the South Atlantic’, on account of its unique biodiversity. A wealth of weird and wonderful plant, bird and invertebrate groups evolved in extreme isolation here, following the

island's volcanic birth some 14 million years ago.

Unfortunately, St Helena's biological riches have been ravaged by habitat destruction and the introduction of non-native plants and animals. Today, the remnants of endemic biodiversity largely hang on – sometimes literally – in fragments of native habitat. Except for a single land bird, the remaining endemic land animals are all invertebrates: more than 400 species. This total surpasses the number of endemics found in the UK and its other Overseas Territories put together.

While conservation action on St Helena has justifiably focused on preserving habitats and vegetation, long-term ecological restoration relies on intact animal assemblages too. But the roles of St Helena's invertebrates, for example as pollinators, remain

poorly understood. Many species are also on the brink of extinction, with some, such as the iconic Giant Earwig, feared lost within living memory.

Without the appropriate skills, resources and tools, St Helena has lacked the capacity to include invertebrates in its conservation work. The Challenge Fund support therefore allowed the project partners to prepare the ground for a long-term initiative. During the scoping visit, the project team met a huge range of people – and what experiences! From the unbridled enthusiasm of school classes on minibeast hunts (and their wary teachers...) to the curiosity of the conservation workers in exploring life at a smaller scale, all these encounters enabled us to refine our approaches in developing a sustainable project. For further details of the future programme, please visit <http://www.buglife.org.uk/>.

Enhancement of a marine park system and promotion of biodiversity through collaboration in the Cayman Islands (18-016)

Since April 2010, a Darwin Initiative project has been working to review and enhance an existing marine protected area system in the Cayman Islands to ensure that, 25 years after their establishment, the parks are still optimally configured to provide the

best possible protection of the islands' rich marine life.

The project has already produced a variety of scientific outputs, including reports on reef health, fish abundance and biomass and fishing pressure around all 3 of the Cayman Islands and an overall assessment of effectiveness of the existing parks. In addition, the project has produced detailed habitat maps showing current direct threats to the marine environment. Protected area planning tools (Marxan) have been used in collaboration with project partner The Nature Conservancy, to model options using different levels of habitat representation, ranging from 30



Photo Credit: J Turner

to 50%.

The project is now at the half way stage, and the Department of the Environment Cayman Islands Government and Bangor University have just completed the first stage of public consultation. In an intense round of 18 public meetings and media events throughout the islands, the team made presentations to Government Ministers, the Cayman Islands Tourism Association, the Watersports Association, charter boat cooperatives, the National Trust, Sea angling clubs and even church ministers, and then took a road-show to community centres to harness opinions on marine issues of importance to local people. They took part in 2 lively radio phone-in programmes, and produced 5 documentary shorts and 2 videos for television, as well as being headline news in the local newspapers.



Photo Credit: J Turner

The current marine parks of the Cayman Islands have served this UK overseas territory very well for 25 years, but when established in 1986, the threats to the marine environment were very different to those of today. 'Population growth, overfishing, climate change and an invasive species of lionfish from the Indo Pacific are the new threats' reported Gina E Banks Petrie, Director of the Environment Cayman

Islands Government. Bangor University's Dr John Turner explained how foresight by the Cayman Islands Government and Caymanian community established a 'world class' system of marine parks: 'Most marine protected areas around the world are little more than 'paper parks', due to lack of management and enforcement. The Cayman marine parks are exceptional, being zoned to provide different levels of protection, with conservation officers enforcing regulations governing boat anchoring, fishing practices and interactions with marine life, such as the famous stingrays that greet tourists at Sting Ray City. However with new threats such as ocean warming causing coral bleaching and disease, increased strength and frequency of storms, sea level rise and ocean acidification, there is an

urgent need to review the protected area system and make it fit for the next 25 years.' The team stressed in their presentations to the public how increased protection from the impacts of today is essential if coral reefs are to be resilient to threats from climate change, and therefore in turn provide services such as coastal protection and economic benefits from tourism and fishing. For further information, contact Dr John Turner, School of Ocean Sciences
E mail j.turner@bangor.ac.uk

Securing the Future of Gurney's pitta in Thailand and Myanmar (EIDP024)

After many years with no recorded sightings, Gurney's pitta was rediscovered in Thailand in 1986 and is the only bird endemic to the Thai/Malay peninsular. It is found in Khao Nor Chuchi forest, an Important Bird Area with the richest lowland forest bird life of any site in Thailand. It has been the focus of an international conservation effort since its rediscovery but the drive by rubber and oil-palm growers has gradually eaten away much of the species' forest habitat.



Photo Credit: RSPB

In 2002, a partnership was formed between the RSPB, Bird Conservation Society of Thailand (BCST - BirdLife partner) and the Forest Research and Restoration Unit (FORRU) of Chiang Mai University, Thailand. In 2005 a Darwin Initiative main project started and was followed by support from the Oriental Bird Club and latterly Darwin Post Project funding.

As part of the initial project, FORRU developed a technical strategy for forest restoration which has proved to be both innovative and successful in quickly re-establishing forest cover. The other aspect was to learn more about the bird's ecology and population status. Survey work in neighbouring Myanmar in 2003 discovered a much bigger population than previously known and this led to the bird being down listed from Critically Endangered to Endangered in 2008.

FORRU employed local staff in Thailand and worked with Government officials to establish a tree nursery at Khao Nor Chuchi so that selective planting and enhancement of forest cover in key areas would link up forest fragments and gradually increase areas available for Gurney's Pitta without impacting on human livelihoods.

Meetings and workshops with local communities, schools, and Government officials in Thailand were held to devise a management framework to enable the plantation farmers to co-exist while reducing their impact on forest biodiversity. The involvement of schools and communities throughout the projects has been central to raising awareness of the linkages between forests, biodiversity and livelihoods. This has helped reduce the rate of forest clearance and facilitate some local villagers to practice sustainable management of their plantations.

Further survey work in Myanmar led to a northerly range extension of about 60km from previous known records and an increase in its altitudinal limit to 250m. A model is being developed that will assist in focusing future survey work in the peninsula. Money raised at the British Bird Watching Fair is being used to help negotiate with the new Government in Myanmar to include important Gurney's pitta habitat within the boundaries of the new Lenya National Park. As the Darwin Initiative project drew to a close, new funding from the Disney Foundation has been secured which will help in our efforts to secure the future of this beautiful species.

Enhancing taxonomic capacity to underpin tropical biodiversity conservation (SE Asia) (18-002)

The international nature of the Harrison Institute's project on enhancing taxonomic capacity within mainland SE Asia was brought home by a number of recent events.

First, Darwin Laotian student Mr Bounsavane Douangboupha from the National University of Laos, who is studying for his PhD at the Prince of Songkla University in Thailand recently described a new species of leaf-nosed bat from Myanmar. The new taxon was given a distinctly Myanmar name (*Hipposideros einnaythu*) by Bounsavane to reinforce its national identity and to encourage further collaboration and research with his Myanmar colleagues. The English translation means 'the leaf-nosed bat that dwells in the home', since on all five occasions that it has been collected, its day roost was in human habitation. Two of the specimens, including the holotype, were collected as part of a previous Harrison Institute, Darwin project entitled 'Biodiver-



Photo Credit: P Bates

sity assessment of limestone karst dependent bats in Myanmar (Burma)'.
Second, we were delighted to welcome Christopher Imakando to Prince of Songkla University to join the

Darwin taxonomic team working on rodent systematics. Christopher is from the Copperbelt University, Zambia. His inclusion is the first step in promoting the Prince of Songkla University not just as a SE Asian regional training centre in taxonomy but also an international one aimed at postgraduate students from throughout the Old World tropics. The rodent team now has students from Thailand, Bhutan, Lao PDR and Zambia and is working on an impressive range of taxonomic projects.

Third, the Afro-Asian Taxonomic Network, a web-based directory of young and established taxonomists working in Africa and Asia, or with an interest in taxonomic issues in the region, now has nearly 150 members from 42 countries. Anyone wishing to join or wishing to contact those already signed up should review the site at [http://www.harrison-institute.org/afro_asian/network_members.html](http://www.harrison-institute.org/afro_asian_network_members.html).



Photo Credit: P Bates

Fourth, the Darwin team recently launched the first circular for the International Ornithological Congress of Southeast Asia <http://www.harrison-institute.org/IOCSEA/index.html>, which will be held in Phuket, Thailand in November 2012. This is the first such conference to be aimed specifically at researchers, conservationists, and enthusiasts interested in SE Asian birds. We hope it will be the first in a series to come over future years.

Fifth, we congratulate Darwin student Ms Uraiporn Pimsai of the Prince of Songkla University on her award of a Systematics Research Fund grant (administered by the Systematics Association and the Linnean Society). Ms Pimsai has already put the money to great use in preparing technical drawings for her monograph on the rodent genera of peninsular Thailand.

From Conversion to Conservation in Critical Tiger Habitat (18-007)

Fauna & Flora International's (FFI) project 'Collaborative Conservation of Critical Kerinci Seblat National Park Buffer-zone Forest', implemented in partnership with local partner Lembaga Tiga Beradik (L-TB) with Darwin Initiative support, is celebrating a significant milestone in its efforts to facilitate community-based forest management in this critical Sumatran tiger habitat.



Photo Credit: Z Cullen

In August 2011 the Minister of Forestry of the Republic of Indonesia approved licences for seventeen Village Forests, granting seventeen villages legal rights to the forest estate for a period of thirty-five years. This represents a total forest area of 36,949 ha. Through this project, FFI and L-TB are working with local government to directly facilitate seven villages and through coordination with other NGOs and lobby at national level have also played an

important role in achieving the wider target of seventeen legally recognised Village Forests.

In mid-2009, when the project was still at the proposal stage, much of the biodiversity-rich forest in the project area, which borders directly with Kerinci Seblat National Park (KSNP) was proposed for conversion to pulp and paper plantation.

These state-owned forests have one of the highest densities of Critically Endangered Sumatran tigers outside the boundaries of the national park, and also overlap with the traditional lands of many forest-edge communities that have long relied on access to the forest resources. Their loss would have had irreversible biological and social impacts.

L-TB staff, who have been working with communities in the project area in since 2005, launched a campaign in partnership with local communities, government and other local NGOs, to reject the pulp and paper plantation and save the forest lands from conversion. After much perseverance, and rejection of the proposed concession by more 50 villages, the proposed concession was cancelled in November 2009.

To avoid a situation of repeated conversion threats and enable empowerment of local stakeholders to

manage and protect their traditional forest lands, facilitation of legally recognised Village Forests was proposed. The timely support from the Darwin Initiative has, and continues, to make a vital contribution to the unprecedented speed and scale of Village Forest development in Merangin District.

Another recent project highlight is participatory forest inventory, in which 56 community members joined in training and implementation of forest inventory, with the aim that each village has accurate data of the natural resources within their Village Forests to support forest management planning. Each village now has a team of individuals with expertise in the survey of mammals, birds, herpetofauna and plants.

There is still much work to do. Next steps include a focus on supporting communities in the second Village Forest licensing phase - securing the management license from the Provincial Governor - supporting and enhancing community capacity to sustainably manage and monitor their forests in the long-term, and identification of diversified livelihoods opportunities that support community development and generate sustainable finance for forest management.

Basic Tools for Managing La Amistad International Park PILA (Costa Rica / Panama) (EIDPO033)



Photo Credit: E Vohman

The post-project Basic Tools for Managing La Amistad International Park PILA (Costa Rica / Panama), implemented by the Natural History Museum, London in collaboration with the National Biodiversity Institute of Costa Rica and the National Environmental Authority of Panama (ANAM), has proved an important initiative in helping meet the challenges of consolidating the joint management of a globally important national park and World Heritage Property by the two Central American host countries. The Park is managed by a Binational Commission established under international agreement. The establishment of a unified management plan for the Park was identified by the Binational Commission in 2004 and reiterated by the UNESCO World Heritage Committee as a very high priority for the Binational Commission and latterly its absence identified as a threat to the Park's survival. The main project was executed in 2006-2009 and aimed to provide the basic technical tools necessary to support the crea-

tion of such a plan. Data in the form of a unified vegetation / biodiversity map, species inventories and conservation assessments were the main outcomes generated by the project. The post-project aimed to use the outcomes generated as part of the main project to increase the capacity of indigenous communities to generate income from the Park in a non destructive manner. It also sought to connect and engage these communities with the outputs from the main project. Twenty-four people from three indigenous territories and two ethnic groups (Bribri and Cabécar) were trained to an accredited standard as ecotourism guides and in the skills to undertake bio-monitoring within their territories and the park's buffer zone. The involvement of communities that are strategically important and living adjacent to protected areas such as this is critical to developing

and implementing an effective management plan for Park's such as this. The successful implementation of this project has also facilitated and improved relations between the two countries, their respective management authorities and the indigenous communities. Establishing a platform from which future management activities between indigenous communities, Government agencies and scientific institutions can be developed and executed. For example, integrating indigenous communities into the Binational Commission. The financial support of the Darwin Initiative has been crucial in the consolidation of this regional effort for biodiversity conservation.

More details of the project and its outcomes in: <http://www.inbio.ac.cr/pila-darwin/paginas/post/post.html>

Kayangel rodent eradication implementation: So far, so good (17-026)

After years of planning and preparation, the implementation of the Kayangel atoll rodent eradication operation finally took place in August and September 2011. Hand broadcasts of rodenticide pellets took place over three weeks from August 23 to September 8. Block bait is still out around homes and in taro patches and wetlands. So far, there have been no signs of rats on any of Kayangel's four islands. Although it won't be known for at least a year if rodents have been eradicated, the project team is cautiously optimistic.

Kayangel State is an atoll at the northern end of Palau. Four islands make up the atoll, including the Important Bird Area of Ngeriungs island and two other smaller uninhabited islands of Orak and Nger-ebelas, and the larger inhabited Kayangel island,

with a population of about 50 people. Together the four islands are 160 hectares. Kayangel is important since it has Palau's highest population of the Micronesian Megapode and Palau's only example of a classic atoll forest.



Photo Credit: K Davidson

The rodent operation centered on the use of rodenticides applied across a 20x20m marked grid for all islands. Bait stations were used in taro gardens (ephemeral wetlands) and around homes, buildings, and livestock areas. During the planning phase Megapodes were identified as susceptible to the use of rodenticide. For this reason Diphacinone which

is significantly less toxic to birds (than Brodifacoum) was chosen. Monitoring of the bait operation has detected no evidence of Megapodes or other non-target wildlife having been negatively affected by the operation.

The greatest factor in the success of the project has been the high level of voluntary community partici-

pation. 60 community members from Kayangel, 6 volunteers from other states, and 8 staff from PCS and 1 from BirdLife International participated in the field operations, including cutting the 160kms of track network, marking the 4,300 baiting points and distributing the 7 tonnes of bait. So far, the field component of the project (from March to September 2011) has required 885 person-days of work (not including supervision, planning, or transportation days). Although more than half of PCS's small staff relocated to Kayangel for portions of the project, PCS also relied on Kayangel-based community leaders during the preparation and implementation phase and for treatment in culturally taboo areas.



Photo Credit: S Cranwell

Technical advice, although challenging to manage due to conflicting opinions, was also critical to the success of the project. Advisors from the USDA NWRC, BirdLife, PII, and PILN provided feedback on the monitoring, operational, and biosecurity plans and during actual implementation. The complexity of the operation and having so many people involved made the availability of experienced technical sup-

port during the implementation valuable in making operational decisions. One surprise was the high level of rodent activity around taro gardens which was countered by increasing bait stations to ensure all rodents could readily access the bait.

Community members have been vocal in expressing their support for the project. Rats in particular have had a huge negative effect on agriculture, and with the rats now hopefully gone, the community has excitedly made plans to replant numerous crops, including corn, tapioca, cucumber, and other

vegetables. Three decades ago Kayangel was known for its corn crop, and the state featured a corn dish in cultural events. However, an explosion in rats in the 1980s led to a decline in corn. Kayangel community members are particularly excited about replanting corn and once again offering their specialty dish at cultural events. There have been additional anecdotal reports that agricultural harvests have already improved, with bananas and coconuts harvested without rat damage.

Supporting Conservation Efforts Through a Faith-based Approach (17-009)

Containing 10% of the world's remaining tropical rainforest, Indonesia provides vital Ecosystem services (ES) for the international and national community in the form of carbon sequestration and climate change mitigation and for rural communities in the form of watershed management. High deforestation rates in Indonesia, particularly Sumatra, highlight the need to promote and facilitate sustainable natural resource management to ensure ongoing benefits from ES.

Indonesia also has the world's largest Muslim population (88% of its 245,500,000 population follows Islam). Religion has a strong influence on daily life and within Islam there are several key principles (Tauhid, Khalifah, Mizan and Fitrah) written in the Al-Qur'an (Muslim holy book) that underpin nature

conservation and outline the human role in conserving natural resources. This therefore presents a unique opportunity to work with Islamic leaders to promote conservation across Indonesia according to these principles.

West Sumatra, Indonesia still contains some of the most pristine rainforest in Indonesia and a watershed that services more than a million people. It is also home to the indigenous Minangkabau (or Minang) ethnic group. Strongly Islamic, the Minang have a rich heritage of religious and cultural traditions, or adat which still have a strong influence on daily life. The strong relationship between adat and Islam is perfectly encapsulated in a popularly used phrase, "adat basandi syara', syara' basandi kitabullah" which more or less means that all rules and regulations within the Minangkabau community should be based on Islamic religious law and Al-Quran- providing a valuable opportunity to pilot a faith-based approach to community conservation.

Implemented by the Durrell Institute of Conservation and Ecology (DICE) at the University of Kent <http://www.kent.ac.uk/dice/about/index.html> in collaboration with an extensive network of national and international partners, this DI project has been working in two *nagari: Guguak Malalo and Pankan Rabaa Timur. A wide range of activities have been conducted including two locally managed field schools and nurseries, training on biodiversity survey techniques

and community mapping of ecosystem services and religious management zones. So far, this year, 73 participants from local farmer groups (15 of which were women) have been trained in tree nursery care, planting techniques, organic fertiliser

and pesticide production and application. Further, at the communities' request, Darwin project staff and local NGO partner Qbar, are providing the necessary support required to formally apply for a customary forest governance system which will serve as a Best Management Practices pilot for future government replication in West Sumatra.

The project has been working with local Ulamas (religious leaders), teachers, community leaders, youth and women's groups to pilot a conservation themed curriculum and campaigns centering on the importance of ecosystem services. This year, in preparation for, and during, the holy month of Ramadhan, the project focused on activities promoting the importance of water conservation. A Green

Mosque campaign was launched in Guguak Malalo which resulted in a community-led clean up of the neighbouring Lake Singkarak and the planting of 50 Indian willow (*Salix tetrasperma*) seedlings and 750 seeds along 1,500 meters of its coast line. The root systems of this tree species provide a preferred breeding ground for the endemic and culturally important bilih fish (*Mystacoleucus padangensis*). This event garnered the support of the District Govern-



Photo Credit: J McKay

ment and the attention of the national media and aided, in part, to its success in winning the honour of representing West Sumatra province in a national environmental competition sponsored by the Ministry of Forestry of which it came in fifth out of twenty-five entries, receiving national recognition as a Conservation Village. The project also worked with two Ulama to design and deliver prayer

sermons focusing on the impor-

tance of water conservation which were delivered in eight mosques within the provincial capital of Padang and in each of the project field sites to over 1,000 people. A further 300 students from religious boarding schools were also taught about environmental issues relating to the importance of watersheds in providing potable water and offsetting the effects of climate change.

Now, almost halfway through its final year, the project is focusing upon compiling the valuable qualitative and quantitative data obtained with an aim to both assessing the project's impact in raising awareness on conservation issues as well as a book entitled "Islamic Guide to Conservation" that describes the Darwin outreach model.



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