

Key Messages:

- Successful 'ridge-to-reef' management depends on broad stakeholder input
- Inland and coastal communities need to manage their actions and resources together
- 'Ridge-to-reef' management protects habitat for all stages of life
- The success of protected areas for conservation and livelihoods relies on combining bottom-up community engagement with top-down planning
- Public health and livelihoods depend on environmental health
- Healthy ecosystems are the best defense against climate change impacts to livelihoods

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Building resilience into reef management

A few weeks ago, the Wildlife Conservation Society Fiji Program (WCS Fiji) organized a reef resilience training workshop in Suva. This was the next step in a regional process *Training of Trainers* which started far away in Palau in July last year, at a workshop run by The Nature Conservancy (TNC). Yashika Nand, Field Officer with WCS Fiji, attended this original workshop in Palau and returned to Fiji with a mission of her own – to pass on what she had learned about reef resilience in Palau to reef managers in Fiji.

The reef resilience training workshop in Suva was targeted at community representatives from the Fiji Locally Managed Marine Area (FLMMA) network and partner organizations. Over 20 participants attended the training, most of them with no previous background in the critical issues related to reef resilience, such as how to design a network of resilient Marine Protected Areas (MPAs), how to recognise coral diseases, how to establishing early warning systems and how to develop a bleaching response plan.

When asked about climate change impacts in different areas throughout Fiji, participants stated that they had noticed:

- Coral bleaching;
- Waves coming over sea walls for the first time in some places;
- Degradation of other habitats such as mangroves affecting food supply;
- New areas flooding due to high waves;
- Rivers drying up during dry seasons; and
- Fires caused by drought in some areas.

Recognising this wide range of climate change impacts, the workshop focused on how to make Fiji's reefs as resilient as possible in the face of climate change. Participants took part in planning scenarios to improve their understanding of identifying resilient sites based on their biological, physical and ecological characteristics. They were also able to justify their selection of MPAs in terms of the four major components of reef resilience: (1) representation, (2) replication, (3) connectivity, and (4) effective management.

Furthermore, by the end of the workshop, all partici-

pants had developed ideas for a bleaching response plan that could be tailored to fishing or non-fishing communities. Participants improved their understanding of how to assess social resilience by using the *Community-Based Risk Screening – Adaptation and Livelihoods* (CRISTAL) tool on climate related hazards and promote sustainable livelihoods. The workshop also included discussions on the difficulties of communicating key messages to communities, and provided some hints and tips for successful communication.

Participants returned home with innovative ideas for how to updating their communities about the concepts of reef resilience, resilient MPA network designs and the impacts of climate change on ecosystem services. The workshop was an excellent opportunity for looking to the future – participants left full of enthusiasm for working with other organisations in their regions to implement reef resilience projects.



Top: Participants putting reef resilience principles into practice to design a hypothetical MPA network.

Bottom: Reef resilience workshop participants, with Yashika Nand in the centre of the front row.

Impacts of harvesting Kia Island's *tabu* area

WCS has recently published a new article in the journal *Coral Reefs* entitled, "Effects of a single intensive harvest event on fish populations inside a customary marine closure." The article is based on scientific data collected before, during and one year after a large-scale harvest of the community-managed fisheries closure (*tabu*) off of Kia Island, on the Great Sea Reef in Macuata Province.

In September 2008, the 3 villages on Kia Island collectively decided to open their *tabu* area for a fundraiser to cover fees for the school, church and provincial levies. The communities made connections with middlemen from seafood export companies so that they had direct access to market their catch. From communication with the local residents, it appeared that the initial cash target was reached after a single day of fishing, but fishing continued 24 hours a day, 6 days a week, for 5 weeks.

The study revealed that a single, intensive harvest event can quickly remove almost all positive effects of protection on reef fish biomass and subsequent reproductive output. The main impact was seen in the disappearance of large-bodied fish, such as trevally, snappers, emperors and surgeonfish, that people preferentially hunt for sale and consumption. One interesting finding was that some of the fish species that did not get totally eliminated in the *tabu* during the harvest may have moved, or 'bailed out', to the adjacent reefs due to the high intensity of fishing pressure.

As an outcome of the research, WCS and colleagues have developed some precautionary recommendations to improve manage-

ment of periodically harvested *tabu* areas:

- To maintain sustainable fisheries benefits for the future, harvests must be controlled through some combination of restrictions on effort, gear, duration of opening, access and/or catch limits;
- The catch should be monitored to ensure that some breeding stock remains to be able to "re-seed" the protected area and adjacent fishery; and
- Community managers should be sure to have a plan in place that details the process by which openings are authorized and the frequency, location, duration and gear type with which they can occur.

WCS is currently seeking funding to work with communities and FLMMA partners to better understand how much can be extracted from *tabu* areas without compromising future food security.



Left: Photo taken during Kia Island's harvest of their *tabu* area in 2008.

Management planning in Wailevu District

The Wailevu Management Planning Workshop was held in Nabalebale village from the 31st January to the 2nd February 2012. The workshop was attended by 25 villages from the district of Wailevu. This workshop was also attended by Department of Forestry, Agriculture and Land Use Department, Cakaudrove Provincial Office, FLMMA, representative from the Cakaudrove Yaubula Management Support Team (CYMST), Partners in Community Development Foundation (PCDF) and WCS staff.

On the first day of the workshop, participants were informed of results WCS Fiji research and government programs in Wailevu East and West. "The communities found out more about their natural resources, how they are threatened, and the ways in which these resources can be protected. This is important information for the communities to build into their management plan", said Akuila Cakacaka, WCS marine biologist. On the 2nd day of the workshop, the participants set visions, conservation targets, threats and strategies for the diverse threats their terrestrial, freshwater, estuarine and coastal, and marine habitats – such as farming on river banks and destructive fishing methods.

Based on this, on the 3rd day the participants set management rules and formulated community action plan for mitigating the threats. The results of these exercises will be used to compile a

'ridge-to-reef' management plan for the district. "Overall there was positive indication from the participants on setting *tabu* areas as a management strategy for forests, reefs and rivers", added Akuila.

In April, the WCS team will visit each village in Wailevu for further consultations on the *tabu* areas and associated rules proposed at the workshop, before holding a workshop with the group of community members who will be responsible for drawing up and implementing the Wailevu management plan. The Roko Tui Cakaudrove in his closing remarks said that the Provincial Office will monitor these plans to ensure that real progress is made in implementing them on the ground.



Above: A facilitated group discussion on the threats to Wailevu natural resources and the strategies to address these threats.

Avian matchmaking on Valentine's Day

Two staff from the BirdLife Fiji Programme and the Pacific Secretariat gave up any amorous intentions of their own on Valentine's Day to try a little avian matchmaking.

Together with volunteers from the Vatu-i-Ra Site Support Group (SSG), the team spent 3 days on Vatu-i-Ra Island, Fiji, installing a solar-powered sound system designed to broadcast the calls of several threatened seabirds in a bid to attract them back to the island.

"We're very excited to be contributing to the conservation of one of Fiji's rarer species," said Sione Gonewai of the Yavusa Nagilogilo, also Chair of the Vatu-i-Ra Site Support Group. "As the owners of Vatu-i-Ra our community recognises our role as custodians of the site. We've been working to protect the island, its seabirds and the marine environment upon which they depend for a number of years."

In 2006 with the local community BirdLife undertook a successful eradication of Pacific rats, accidentally introduced by people many centuries before. Introduced mammals have been the number one driver of bird extinctions and their impact has been particularly severe in the Pacific. As a mammal-free island, Vatu-i-Ra is now acting as a safe haven for many bird species. The island supports internationally significant populations of several noddies, terns and boobies; since the eradication survey teams have already recorded encouraging signs such as an increase in the number of ground-nesting birds.

Now the aim is to take full advantage of this site by establishing the first colony of collared petrels at a predator-free location. Collared petrels are listed as Vulnerable on the IUCN Red List, having suffered historical declines as a result of both overharvesting of

adults and chicks for food, and the negative impact of invasive mammals.

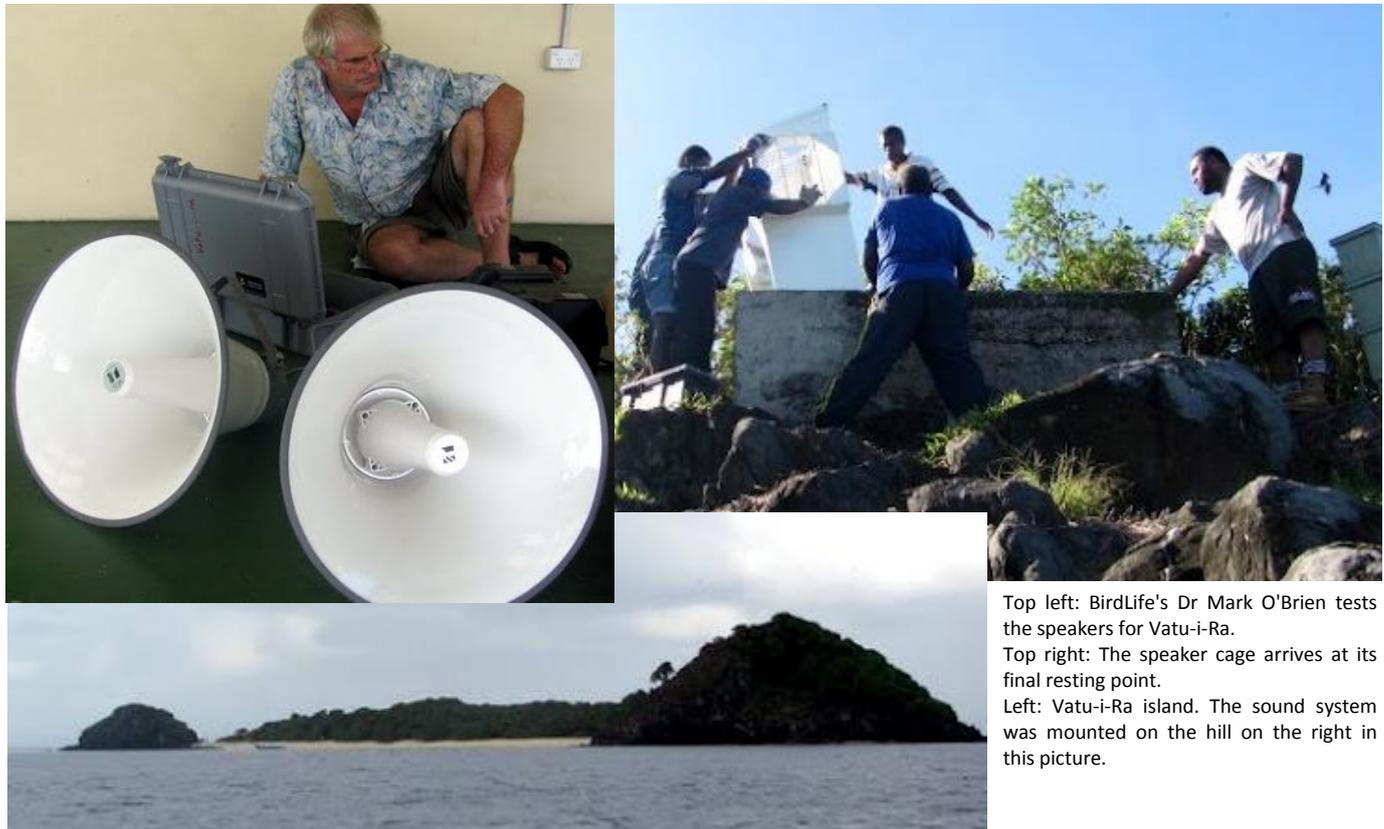
"Our mammal-free islands are huge assets", said Sialesi Rasalato, BirdLife's Fiji Programme Conservation Officer. "Now we're really looking to join all the dots and maximise the potential these sites have for conservation".

Remote playback has proven itself to be an enormously successful tool in New Zealand and elsewhere for attracting threatened seabirds to breed at specific sites. In this case, selecting a predator-free island offers the chance of establishing a colony of a very rare species where one of the major threats has been removed. The speaker system can run for up to 5 years, switching on every night to broadcast calls and turning itself off again to recharge in daylight. As well as the sound system the team has installed 20 artificial nesting burrows to encourage the first birds in.

2012 marks the start of a real push for petrel conservation in Fiji. NatureFiji-MareqetiViti are continuing their searches for petrel burrows with specially trained dogs on Gau, and have just installed a playback device to begin attracting birds to artificial burrows where they can be effectively monitored and protected. The BirdLife Fiji Programme and the Nabukelevu site support group on Kadavu are also beginning a similar project.

BirdLife would like to acknowledge all of its donors who have supported the important work described here: The David and Lucile Packard Foundation, the Aage V. Jensen Charity Foundation, the Pacific Seabird Group, the Crowder Messersmith Conservation Fund and Critical Ecosystem Partnership Fund.

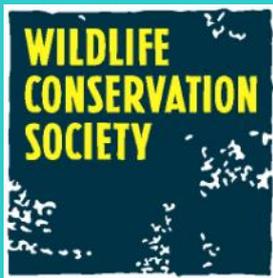
Source: www.birdlife.org



Top left: BirdLife's Dr Mark O'Brien tests the speakers for Vatu-i-Ra.

Top right: The speaker cage arrives at its final resting point.

Left: Vatu-i-Ra island. The sound system was mounted on the hill on the right in this picture.



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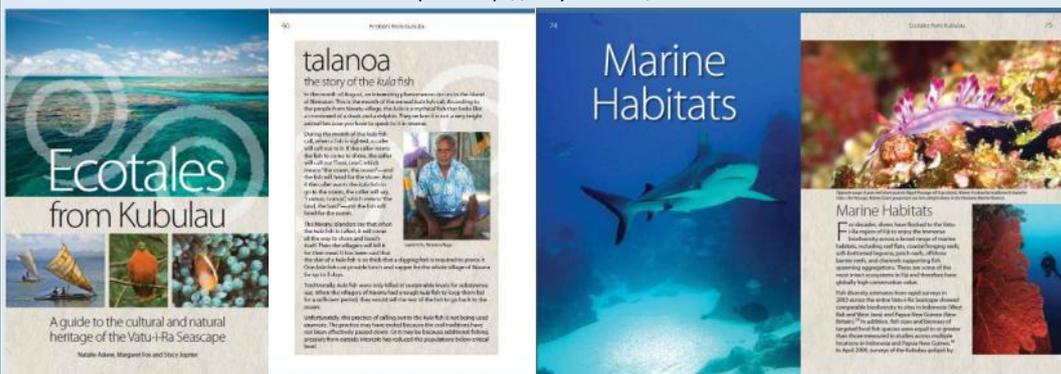
Ecotales from Kubulau launched

On December 22nd 2011, WCS Fiji hosted the launch of Ecotales from Kubulau, a joint publication by WCS Fiji and the Coral Reef Alliance (CORAL) to showcase the remarkable plants and animals that are both astounding in their beauty, and culturally important to people living in the Vatu-i-Ra Seascape.

The book took a year to compile, with WCS Field Officer Margaret Fox responsible for recording the stories first hand from the elders of Kubulau. Originally from Bua Province, Margaret said "This is the first time for me to be part of a project of this sort and I am quite happy with my efforts because I was able to understand the Kubulau dialect, so language was no barrier. It was life-changing and exciting to sit down with the elders - both men and women alike - and compile their stories."

It is the hope of WCS Fiji, CORAL and the people of Kubulau that the guide will raise awareness about the importance of the plants and animals to local livelihoods, cultures, and ecosystem functions. The stories in these pages come directly from the elders of Kubulau, who have described their associations with species for medicine, decorative arts, building materials, food, and totem spirits. By collecting these stories, the traditional knowledge that is rapidly fading away with modernization can now be preserved for the youth of Kubulau and the Vatu-i-Ra Seascape. The book was requested by the Tui Kubulau Ratu Apenisa Vuki. The formal request to WCS Fiji on behalf of Ratu Vuki was made by the Turaga Tui Nadi Ratu Peni Rasigare.

Proceeds from the sale of the book will directly support ecosystem management and community development in Kubulau. Ecotales from Kubulau is available to purchase from the University of the South Pacific Book Centre store and online shop at http://tinyurl.com/ecotalesatUSP.



Above: Ecotales from Kubulau contains facts about plants and animals of Kubulau District and the wider the Vatu-i-Ra Seascape, mingled with traditional stories collected from the elders of Kubulau villages.

Diseases spreading after flooding



The death toll has been steadily rising following the floods in the Western Division, a situation widely reported in the Fiji press. There have been a total of 7 deaths from flood-borne diseases since flood waters receded at the start of February. A public health emergency order is now in place for Koroboya village and Naitasiri settlement and will last for 30 days from 25 February. This step was taken after clinical confirmation of 14 cases of flood-related illnesses in the area. The order prohibits gathering in large groups and movement into or out of these areas.

The Ministry of Health has been advising residents in flood-affected areas to seek early medical attention if they notice any flu-like symptoms, because the treatment for these diseases can be simple and effective—especially for typhoid and leptospirosis which are treated with antibiotics. It is expected that vaccinations for typhoid will be deployed to flood-affected areas. Yet this is an acknowledged short-term preventative solution only, as the typhoid vaccine is only effective for 3 to 5 years.

WCS, in partnership with collaborators from Massachusetts Institute of Technology, the Fiji Ministry of Health's Environmental Unit and James Cook University recently built a proposal to investigate mechanisms underlying transmission of waterborne bacterial diseases, such as typhoid, in order to propose cost-effective long-term measures to reduce disease burden. We hypothesize these preventative catchment management measures will improve condition and availability of downstream natural resources on which Fijians depend for subsistence and livelihoods, thus doubling benefits from research investment. WCS and collaborators are currently sourcing funds for this innovative, interdisciplinary research.