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

Inside this issue:

EBM-FIJI NEWSLETTER

Volume 4, Issue 2 **June 2012**

The Adventures of Joji Goby

On 15-16 March, the Wildlife Conservation Society Fiji Program (WCS Fiji) launched a comic book "The Adventures of Joji Goby" at 5 schools in Kubulau and Wainunu districts, Vanua Levu. Each presentation included:

- A formal offering of a set of comic books (in Fijian language) for the schools to use and incorporate into their teaching curriculum;
- A puppet show performance of the story by WCS Fiji staff, complete with question and answer sessions; and
- Presentation of t-shirts and river care packs to designated Goby Youth Ambassadors, with instructions on how to use a checklist to identify whether district rules for stream management are being obeyed.

Overall, we were able to reach over 750 students, teachers and parents between the following schools: Ratu Emeri School, Kubulau District School, Wainunu Seventh Day Adventist School, Adi Eliane School, and Ratu Luke School.

The reports back from the headmasters and teachers were glowing. The headmaster of Ratu Emeri confided that one student told him that they will need to clear the cassava and taro gardens planted for the teachers because they are within 30 meters of the stream, which is in violation of the rules of the Kubulau ecosystem-based management plan. The headmasters from both the Wainunu Seventh Day Adventist School and Adi Eliane both announced that they will help the children put into practice the messages about environmental management that they have been taught. Finally, the high chief of Kubulau, Ratu Apenisa Vuki, was particularly touched as the artist, Tui Ledua, is from Kubulau and his work will therefore inspire the young students to similar achievements.

WCS Fiji staff will visit the different schools engaged to follow up on how the youth ambassadors are coping with their checklist after the first round of monitoring, and to address any difficulties or concerns the students may have.

An article featuring the launch and photos from the event appeared in the April edition of MaiLife magazine. Watch the short video at www.wcsfiji.org.fj/the-adventures-of-joji-goby, for extracts of the puppet show and some very excited reactions from the children. Due to the great success of the launch, WCS staff are planning other puppet shows in the coming months, to further spread the message about protecting Fiji's precious rivers and streams.

Clockwise from top left: The comic; Goby Youth Ambassadors from Kubulau District School with WCS staff and Tui Kubulau; students at Kubulau District School reading the comic; primary and secondary students at Ratu Luke School patiently waiting for the puppet show; Margaret Fox and Adi Sici ('Lady Snail'); WCS staff backstage in Wainunu SDA school. Puppets were hand-made from recycled materials by Anne O'Brien of Anniemals.

Hunting for insects on Viti Levu

Two scientists from the University of California, Berkeley spent three weeks in Fiji in May 2010 to study the remarkable and poorly understood insect biodiversity of Viti Levu. U.C. Berkeley scientist, Gordon Bennett, visited Fiji to investigate the origins of the diverse native Hawaiian leafhopper genus *Nesophrosyne*. Species in this genus are thought to have colonized Hawaii only once from the Western Pacific rim, and diversified into over 200 species. *Nesophrosyne* is hypothesized to share a common ancestor with the genus *Orosius*, which is widespread throughout Oceania and South East Asia. Fiji has at least three species—several of which are serious agricultural pests. (e.g. *O. argentatus* and *O. orientalis*). Unfortunately, little is known about the evolutionary relationships of these species.

Understanding the origins of Pacific insects is important, because it provides an evolutionary context to understand the diversification and adaptations of Island groups. Bennett uses the endemic Hawaiian leafhoppers as a model system to elucidate the processes that shape and maintain biodiversity in endemic Pacific plants and insects. Unfortunately, leafhoppers remain one of the least known insect groups, especially in the tropics and for places like Fiji.

Above: Gordon collecting leafhoppers in the cloud forest at the summit of Mt. Tomaniivi. Right: *Epicephala* moth pollinating a *molau* flower on Tahiti, French Polynesia.

PhD student David Hembry was searching for *Epicephala* moths, unique insects on which Fiji's native *molau* and *qalo* trees (*Glochidion* spp.) depend for their life cycle. *Epicephala* moths are the only insects which can carry the pollen of *molau* trees from flower to flower, but in pollinating, they also lay eggs in the *molau* flowers so that the tree sacrifices some (but not all) of its seeds to the growing caterpillar.

There are eighteen species of *molau* and *qalo* in Fiji, each of which is found nowhere else in the world. David found that this diversity appears to be matched by a similar diversity of *Epicephala* moths; in fact, elsewhere in the world, each species of *molau* tree can require only one or two species of moth for pollination. Further investigation is needed in Fiji to understand the complex dependence of each species on the other, but it is likely that the extinction of a moth species would spell extinction for its *molau* tree and vice versa.

Gordon and David acknowledge the generous logistical support of Wildlife Conservation Society Fiji Program, particularly Akanisi Caginitoba and Alipate Raikabula, without whom this fieldwork would not have been possible, and the villages of Wainimakutu, Navai, Nadrau, and Abaca for permission to collect.

Wainunu District launches network of protected areas

Communities in Wainunu will come together on 1st June to launch an Ecosystem-Based Management (EBM) Plan for their district. The plan, which is the culmination of 2 years of research, consultations and planning facilitated by the Wildlife Conservation Society Fiji Program (WCS Fiji), outlines management rules and protected areas across the district and its customary fishing grounds. It fuses scientific principles with local and traditional ecological knowledge to promote sustainable management of terrestrial, freshwater, estuarine, coastal and marine habitats.

Tui Wainunu Ratu Orisi Baleitavea (above, with WCS Fiji Director Stacy Jupiter) said that the rules and *tabu* areas will be effective from 1st June. "We will go out to sea and have the church pastors bless the *qoliqoli* area and the reef" he said. "We are looking to maintain some *tabu* areas for as long as 10 years to ensure our fishing ground has an abundant supply of fish and seafood for our children and their children".

The EBM plan will be implemented and monitored by the Wainunu Resource Management Committee, which has representatives from all local villages and settlements as part of a collaborative management approach.

"The committee will work with village headmen and the villagers of Wainunu to ensure *tabu* areas are observed" stated Ratu Orisi Baleitavea. "We also expect all those living in the *vanua* of Wainunu to respect the *tabu* and stay away from restricted areas."

The launch coincides with the start of a 2 month period of reflection, reconciliation and renewing of faith in Wainunu. "We have been doing this in June and July since 2005", explained Ratu Orisi Baleitavea. "People give up drinking *yaqona* and smoking cigarettes. We forgive each other and leave the past behind in order to achieve a successful future. It is also the time for traditional leaders to re-examine their commitment and responsibility to members of their *mataqali* and *yavusa,* and make necessary changes for the better".

Left: Children from Daria village, Wainunu—Tui Wainunu hopes their future will be brighter with the management plan in place.

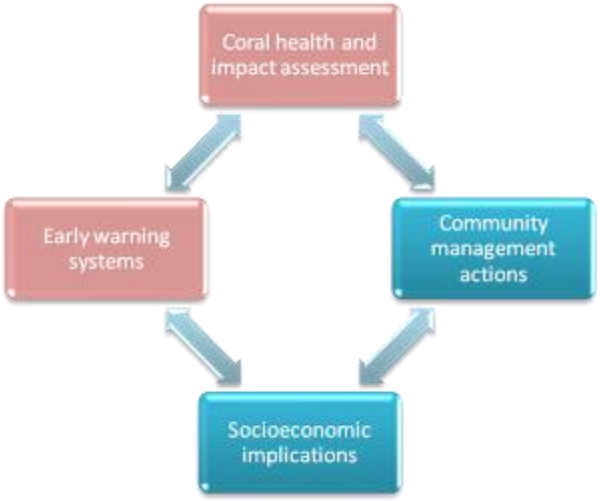
Framework for responding to coral bleaching

Bleaching response is a way for reef managers to prepare for and respond to coral bleaching events. A bleaching response plan can minimize any panic and help communities adapt to ecosystem changes, for example through developing alternative livelihoods while allowing the reefs to recover from disturbance.

During the reef resilience training arranged by the Wildlife Conservation Society Fiji Program (WCS Fiji) in February 2012 (article in March EBM partnership newsletter), a community-friendly and local-scale bleaching response framework was developed with 4 major components:

1. Coral health and impact assessment;
2. Early warning systems;
3. Community management actions; and,
4. Socio-economic implications.

This framework was adopted for easy implementation by communities, with the idea that the components can be tailored according to local needs. The components fall into two categories: those requiring annual monitoring and those for which monitoring should be put in place once bleaching occurs.



Above: The interactions between components of the bleaching response framework. Pink boxes indicate monitoring to be undertaken annually, and blue boxes indicate monitoring to be carried after a bleaching event.

Component 1: Coral health and impact assessment → 'Eyes on reefs'

This component identifies resource users and implementation personnel. It depends on keen eyes to spot signs of bleaching, the so-called 'eyes on reefs'. These signs might be a change in coral colour, increased numbers of predators such as Crown of Thorn Starfish (COTS) and *Drupella* (sea snails), invasive species, algal over-growth, or coral diseases. These signs of coral health need to be assessed over time so that they can be indicators of early detection.

Component 2: Early warning systems

Early warning systems are the channels which will be used to communicate information about potential bleaching events to resource users. Some examples of early warning systems are: village meetings, text messages, brochures, posters and letters. These should be used to deliver the information accurately without creating any alarm amongst communities.

Component 3: Community management actions

In the framework, management actions are categorised as preventative or responsive actions. Preventative actions are taken before any bleaching events to reduce the impacts through resource management—for example, managing catchment areas and avoiding destructive fishing practices. Responsive actions are help coral reefs recover from bleaching and include setting up seasonal and/or temporary *tabu* areas, minimizing the fishing of herbivores and setting up no-anchor zones.

Above: MPA design poster created as one of the early warning systems to communicate information about potential bleaching events.

Component 4: Socio-economic implications

This component focuses on the effects of both bleaching events and management actions on social systems and communities. If a responsive action is a ban on fishing of herbivores for three months, then what will communities use for their subsistence needs if they depend on fishing to feed their families? Furthermore, fish numbers decline after mass bleaching events and longer hours will need to be spent at see to catch the same number of fish, or even fewer fish. Situations like these call for the development of alternative livelihoods: a socio-economic implication plan could help communities adapt to changes and survive during times of disaster.

WILDLIFE CONSERVATION SOCIETY

www.wcsfiji.org

For more information, queries or to submit any future EBM articles please contact:

The Editor
Fiji EBM Partnership Newsletter
WCS Fiji Program
11 Ma'afu Street
Suva, Fiji

Phone: + 679 331 5174
Fax: + 679 331 0178
E-mail: infofiji@wcs.org

Join us on Facebook
www.facebook.com/wcsfijiprogram

Follow us on Twitter
@wcsfiji

Local conservation group receives global award

A local group working to conserve the Natewa Tunuloa Important Bird Area, on Vanua Levu, Fiji, has won the prestigious Equator Prize for 2012. "BirdLife's Sisi Initiative stood out among more than 800 entries as a remarkable demonstration of local development solutions for people, nature, and resilient communities", said Eileen de Ravin—manager of the Equator Initiative.

The Equator Prize shines a spotlight on outstanding local and indigenous groups from across the world working towards sustainable development. The winners were announced at a special UNDP ceremony in New York, and representatives of winning communities will receive their prize at an award ceremony at the UN Conference on Sustainable Development (Rio+20), which will be held in Brazil in June 2012.

Establishment of the community-based Sisi Initiative was supported by the BirdLife Fiji Programme in 2006 in response to illegal logging, forest fires, overgrazing, agricultural encroachment and invasive alien species around the Natewa Tunuloa Important Bird Area. Important Bird Areas are sites that are of critical importance for the survival of wild birds and nature in Fiji and around the globe. Natewa Tunuloa covers large tracts of old-growth rainforest which support globally threatened birds such as Shy Ground-dove and Silktail.

In a short time the Sisi Initiative has made a big difference. "The establishment of over 6,000 hectares of community protected forest has been one of the greatest highlights of BirdLife's work with local communities in Fiji", said Don Stewart—BirdLife International's Director for the Pacific.

The voluntary group has also worked to develop income-generating activities that are compatible with nature conservation. "Fiji's Sisi Initiative has ensured that communities around Natewa Tunuloa understand the link between traditional livelihoods and the environment, making them more resilient and capable of withstanding changes to their lifestyle, environment and climate", added Mr Stewart.

Left: Community members planting seedlings for the tree nursery. Credit: BirdLife Fiji Programme

Integrated Coastal Management in Ra

Ra Province, on the northern tip of Viti Levu, is ready to embrace the ridge-to-reef approach, and become a demonstration site for provincial-level Integrated Coastal Management (ICM). As well as drawing up an ICM plan for Ra Province, this Fiji Government project will support a national ICM Committee to develop a national plan – the Environment Management Act (2005) makes a provision for this Committee to be appointed by the National Environment Council. The Ra model will also provide a framework on which the provinces of Nadroga, Kadavu, Cakaudrove and Macuata can build their own ICM plans.

National, provincial and local stakeholders met in April, firstly to find out about existing plans for development and natural resource management in Ra, then to make decisions about how these plans can be brought together under the umbrella of the ICM plan for Ra. The participants went on to identify key threats to the ecosystems of Ra, and used these threats to inform project activities for 2012.

The Fiji ICM project will run from 2011-2015 and is part of a wider suite of work to ensure future food security, under the Pacific Coral Triangle Initiative. Other countries involved are PNG, Solomon Islands, Vanuatu and Timor Leste. Funders include the Asian Development Bank (ADB) Global Environment Fund (GEF), USAID and AusAID.

The Wildlife Conservation Society Fiji hopes to run a similar ICM project in parallel in Bua Province, which faces Ra from the opposite side of the Vatu-i-Ra Seascape, across Bligh Water.

Above: Participants at the Fiji ICM provincial planning meeting, including Director of Environment, Jope Davetanivalu (back row, fifth from left).