

Key Messages:

Preservation of functional integrity of Fiji's eco-scapes through multiple stakeholder management.

- 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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L to R – Ms. Jackie Thomas, WWF, Ms. Eleni Tokaduadua, Fiji Dept of Environment, Mr. Bernard O'Callaghan, IUCN, Ms. Touasi Tiwok, Vanuatu Dept of Environment and Dr. Stacy Jupiter, WCS

On 25 October 2010, WCS and the Fiji Department of Environment co-hosted a side event at the Convention of Biological Biodiversity in Japan, to promote the application of ecosystem-based management in the Pacific. The event featured a launch of a new handbook written by Pepe Clarke and Stacy Jupiter: **"Principles and Practice of Ecosystem-Based Management: A Guide for Conservation Practitioners in the tropical Western Pacific"**.

The guide was launched by Dr. Jupiter, followed by a presentation by Senior Environment Officer of the Fiji Department of Environment, Ms. Eleni Tokaduadua, on ways that ecosystem-based management (EBM) is being mainstreamed into national policy in Fiji.

Other speakers at the launch included: Ms. Jackie Thomas (Climate Change Policy Officer for WWF South Pacific Programme), Ms. Touasi Tiwok (Senior Biodiversity Officer for the Vanuatu Department of Environment), and Mr. Bernard O' Callaghan (IUCN Oceania Programme Manager). The EBM guide has also been translated into Fijian distributed to all 14 provincial offices in Fiji as well as to many community members of the Fiji Locally Managed Marine Area network.

This handbook presents lessons learned from five

years of researching and implementing EBM in the Western Pacific. The guide is designed for use by managers, particularly in developing nations where EBM approaches used in industrialized countries may not be feasible or appropriate. It shares experiences with implementing EBM from Fiji, Indonesia and Palau. Some key lessons from the guide include:

- Ecosystem management processes should respect the needs, interests, rights and aspirations of local communities, and contribute to local as well as national goals;
- Effective EBM requires an understanding of social and biological connectivity;
- Management should be adaptive and iterative as new information becomes available;
- Collaborative partnerships and broad stakeholder participation greatly enhance management effectiveness; and
- EBM provides a cost-effective for reducing vulnerability to climate change impacts.

Partners in the production of the guide include: Wetlands International-Oceania, WWF, The Nature Conservancy, Conservation International, University of the South Pacific, and Palau Conservation Society. The Guide was produced with support from the David & Lucile Packard Foundation.

Pioneering multi-agency research team investigates freshwater fishes and forests of Vanua Levu

A research team consisting of two NGOs (Wetlands International-Oceania & Wildlife Conservation Society) and two Fiji government departments (Fisheries & Forestry) have completed one month of freshwater fish and riparian forest surveys. The surveys were completed in Wainunu and Kubulau districts of Bua Province and the districts of Sasa and Macuata in the northern province of Macuata. The team is working on an answer to a fundamental question for conservation and development, **“What is the role of riparian forest buffers in preserving in-stream fish abundance, diversity and water quality?”**

On continental landmasses, similar research has shown that at least 30m wide riparian buffers are necessary to maintain ecosystem functions and processes. However, this is the first time this research is being done for tropical high islands whose river catchments are generally steeper, shorter and have specialized fish fauna and riparian forest.



In the first week in Wainunu, the research team recorded over 23 species of freshwater fishes and worked in mainly well-forested catchments with few invasive species. These areas seem generally well stocked with large gudgeons (*vo*) and flagtails (*ika droka*) and the water quality benefits from an abundance of riparian vegetation like Tahitian chestnut trees (*ivi*). However, as most of the fishes are migratory, major obstacles such as high waterfalls or hanging culverts bisect the stream and many of the fishes are prevented from going upstream no matter how well-intact the riparian forest.

Maintenance of a wide and continuous riparian buffer strip around rivers will help preserve fish abundance and water quality. Building fish ladders into hanging culverts can also potentially help to increase fish abundance and diversity upstream. The results of this research will be made available for local and national conservation and development planning and can also have application throughout the Pacific on similar high island ecosystems. This research is being funded by the David and Lucile Packard Foundation.

Creating sustainable resource use - WWF South Pacific Program Office

Learning from the mistakes of their forefathers, four villages in Dreketi have begun a replanting programme with nurseries now growing young indigenous trees as a gift to their future generations.

For the past few years the villagers in Vunisea, Lutukina, Nabavatu and Vuinaqalutu in the district of Dreketi have relied on farming as their major source of income.

In Fijian communities, forest areas are demarcated and responsibilities for their care are allocated to clans and sub clans. The clearing of forests has brought about threats that go beyond traditional boundaries. As a result of unsustainable logging, there has been a decrease in significant amounts of indigenous tree species. These species include *vesi* (*Intsia bijuga*), *dakua* (*Agathis macrophylla*) and *yaka* (*Dacrydium nidulum*), which take at least 80 years to mature.

The villagers received training from the Fiji Department of Forests, Agriculture and WWF SPPO in their communities through funding from the Global Environment Facility (GEF) Small Grants Programme for

sustainable replanting.

Drawing lessons learnt from another WWF SPPO project site in the Ono-i-lau district, the planting of yasi or sandalwood (*Santalum yasi*) as an alternative to cutting down indigenous hardwood has commenced in these villages of Dreketi.

“Through this project, a new wave of awareness about the importance of protecting forests has enveloped the villagers. They now have more appreciation of their natural surroundings and are also able to understand the connectivity between the forest and freshwater ecosystems. This has also led to the establishment of taboo areas in portions of their river systems,” said Sustainable Landuse Officer, Opeti Vateitei.

“The sandalwood tree takes only 20-30 years at the most to mature and has been identified to be a more sustainable species and as an alternative source of income. By comparison, a fully matured sandalwood tree can fetch up to \$20,000, while each of the four threatened species can only reach at the most \$200 per tree,” said Vateitei.

“Villagers have also come to understand



the relationship between conservation and livelihoods. They need to sustainably use and manage their resources to guarantee them livelihood security in the years to come,” he added.

Four communities in the Dreketi province have succeeded in establishing an organic vegetable farm as a result of this project. The organic vegetable garden will be used as a source of income for the families as well as provide another dietary choice for them. Markets for these vegetables have been established and demand has come from the other three villages within the district and the Dreketi Shopping centre.

Eco-Health Symposium—Wetlands International—Oceania

For the first time ever, major professionals in the environmental and health communities gathered in Suva for a two-day Eco-Health Forum, exploring the latest scientific updates in Fiji on issues such as flood management, typhoid, safer water supplies, and environmental health.

The program was supported by Wetlands International—Oceania and Livelihoods Project and funded by the Dutch Ministry of Foreign Affairs (DGIS).

Altogether, the Forum saw 31 presentations on a wide range of local Eco-Health topics from major scientists and practitioners in the health and environmental fields.

"For the first time ever, the major players in public health and environmental sectors are being brought together to discuss the links between ecology and human health. We hope that new partnerships and projects will be built that consider environmental health and human

health together," said Aaron Jenkins, the Senior Program Manager Pacific of Wetlands International. Mr Jenkins, who is a marine biologist by training, added: "Given the recent outbreaks of waterborne diseases such as typhoid and the fact that components of these outbreaks may be related to environmental factors, now is the time to bring members of both the health and environment sectors together to foster greater collaboration".

The presentations at this major conference covered a wide range of Eco Health issues including:

- Vinesh Kumar of the Department of Agriculture on "Integrated water resource management in the Nadi basin: An integrated flood risk management approach";
- Dr. Joeli Veitayaki of the Marine Studies Program, University of the South Pacific on "Saving the environment and us: The role of environmentally friendly technology";
- Salote Waqanivalu of the Ministry of

Health/World Health Organisation (MOH/WHO) on "Piloting climate change adaptation to protect human health";

- Tim Nolan of the International Union for the Conservation of Nature (IUCN) on "Managing mangroves for climate change adaptation in the Pacific: rolling out the Pacific Mangroves Initiative";
- Dr Randolph (Randy) Thaman of USP/ Faculty of Islands and Ocean on "Agrobiodiversity - Foundation for food, health, and productive security in the Pacific Islands";

Specialists from the Ministry of Health/Fiji Health Sector Improvement Program (MOH/FHSIP):

1. Unaisi Bera on "An environmental health impact assessment survey in Fiji"
2. Kylie Jenkins on "Typhoid fever control in Fiji"
3. Aminiasi Mucunabitu on "Improving water and sanitation in the aftermath of cyclone Thomas".

Protected Area Committee Workshop with Provincial Administrators

For the first time ever, Roko Tui and Senior Assistant Roko Tui of the 14 provinces of Fiji were invited to join members of the national Protected Area Committee and the Fiji Locally Managed Marine Area network to a National Planning Workshop, facilitated by WCS at Nadave training centre. During the workshop, the participants were briefed on the following issues: (1) the work to date by the National Protected Area Committee in assessing progress against Fiji's national biodiversity targets under the current system of terrestrial and marine protected areas; (2) the role that government, NGOs and other agencies have played in prioritising areas for protection and management to conserve Fiji's unique biodiversity and preserve livelihoods; (3) the partnership arrangement that exists amongst these agencies and the local communities in terms of the management of their protected areas; and (4) the need for the Roko Tui and their staff to be more involved in these activities and support the communities in the management and planning activities of their *qoliqoli* and land areas within their respective tikina and provinces.

The Roko Tui were exposed to a series of related lectures delivered by distinguished speakers on issues such as Fiji's marine eco-regions, mangrove ecosystems, endemic plant and fish species together with the wetlands and their connectivity areas. The Roko Tuis were also introduced to the evolution of both the Fiji Locally Managed Marine Area (FLMMA) and the terrestrial protected area networks to allow them to



have an in depth knowledge of the conservation strategies employed in both ecosystems. A major part of the workshop was devoted to conservation planning using maps and charts to assist the Roko Tui and their community leaders involved with both the marine and terrestrial protected to identify critical areas within both ecosystems that the villages, tikina and provinces could expand their conservation activities into. English and Fijian versions of the EBM Guide were distributed to all participants.

Workshop outputs included: (1) maps of candidate natural and cultural heritage sites proposed for protection; (2) strategies on how to communicate to their communities critical issues discussed in the workshop; and (3) action plans for next steps implementation on the ground in each province.



Above — Stacy Jupiter leading an interactive mapping exercise.

Left— Workshop participants, Roko Tui's, Assistant Roko Tui's and workshop facilitators.



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Spreading EBM principles into Wainunu and Wailevu districts

WCS and the Kubulau Resource Management Committee recently completed introductory workshops in Wainunu District in Bua Province and Wailevu District of Caukaudrove Province in order to share lessons learned by Kubulau in implementing EBM and to begin to develop management institutions and plans for the neighbouring districts. The districts of Nadi and Solevu (Bua Province) also attended the Wainunu workshop at their own expense to learn about

establishing their own resource management committees and management plans.

The workshop presented the principles of EBM and sustainable financing. Groups did mapping exercises highlighting their traditional ecological knowledge. Participants listed their future vision for their respective tikina, identified threats and management solutions to the threats. The platform was also set for the establishment of new district resource management committees.



Participants from the Wainunu workshop



Participants from the Wailevu workshop

Below- Interactive group mapping activities held at both workshops



CONSERVING WILDLIFE AND WILD PLACES

Science-based marine protected areas (MPAs) have been demonstrated to protect exploited marine resources, may increase coral reef ecosystem resilience, and are considered an essential tool for the long-term management and conservation of high priority seascapes around the world. Recognizing the connectivity between terrestrial and marine systems has led to a more holistic approach that also includes terrestrial processes and their potential impact on marine habitats. For example, sedimentation and nutrient enrichment have been found to be key threats to the health of nearshore marine ecosystems.

Therefore understanding the potential impacts of runoff from watersheds on the adjacent marine areas is vital.

Our research and advocacy as part of this EBM project is building an applied understanding of how terrestrial and marine systems are connected in terms of fauna and habitat quality, and what the implications are for conservation management in a tropical high island setting. The areas we are investigating include the aquatic fauna that utilize "wet" ecosystem types during different life stages (living connections between the land and the sea), spatial

patterns of perceptions of ecosystem change, community resource use, potential influence of terrestrial nutrients and run off on near shore environments, the effects of intensive harvesting of a traditional MPA on reef fish communities, fish community responses to management in Fiji, a low cost resource mapping approach for Pacific Islands, the connectivity of marine habitats, including understanding the movement ranges of adult reef fishes from MPAs, and priority conservation regions (Ecoscapes) for Fiji Islands to preserve ecosystem connectivity.

