



BEST OF THE WILD: WILDLIFE CONSERVATION SOCIETY and the
VATU-I-RA LAND/SEASCAPE







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VATU-I-RA LAND/SEASCAPE

PHOTOS: COVER: L. HAUGEN; INSIDE COVER: S. JUPITER/WCS; PAGE 3 (FROM TOP): M. MARNANE, MAP: I. QAUQAU AND S. JUPITER; PAGE 4: M. TRESSLER; PAGE 5: S. JUPITER/WCS (2); PAGE 7: S. JUPITER/WCS (TOP; MIDDLE RIGHT); M. MARNANE (MIDDLE AND MIDDLE LEFT), M. TRESSLER (BOTTOM); PAGE 9: L. HAUGEN (TOP), S. JUPITER/WCS (BOTTOM); PAGE 11: H. SYKES (TOP); S. JUPITER/WCS (BOTTOM); PAGE 13: M. CALLOW (TOP); M. MARNANE (BOTTOM).

Stretching across the channel that links Fiji’s two main islands is a blue-green jewel of forest and reef. Called Vatu-i-Ra, its vibrant seas are laced with coral reefs, masses of colorful reef fish, and sea turtles, while the adjoining landscape of coastal forests is alive with crested iguanas, tree frogs, and sea birds.

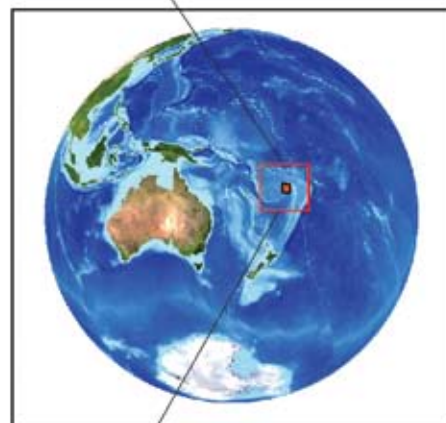
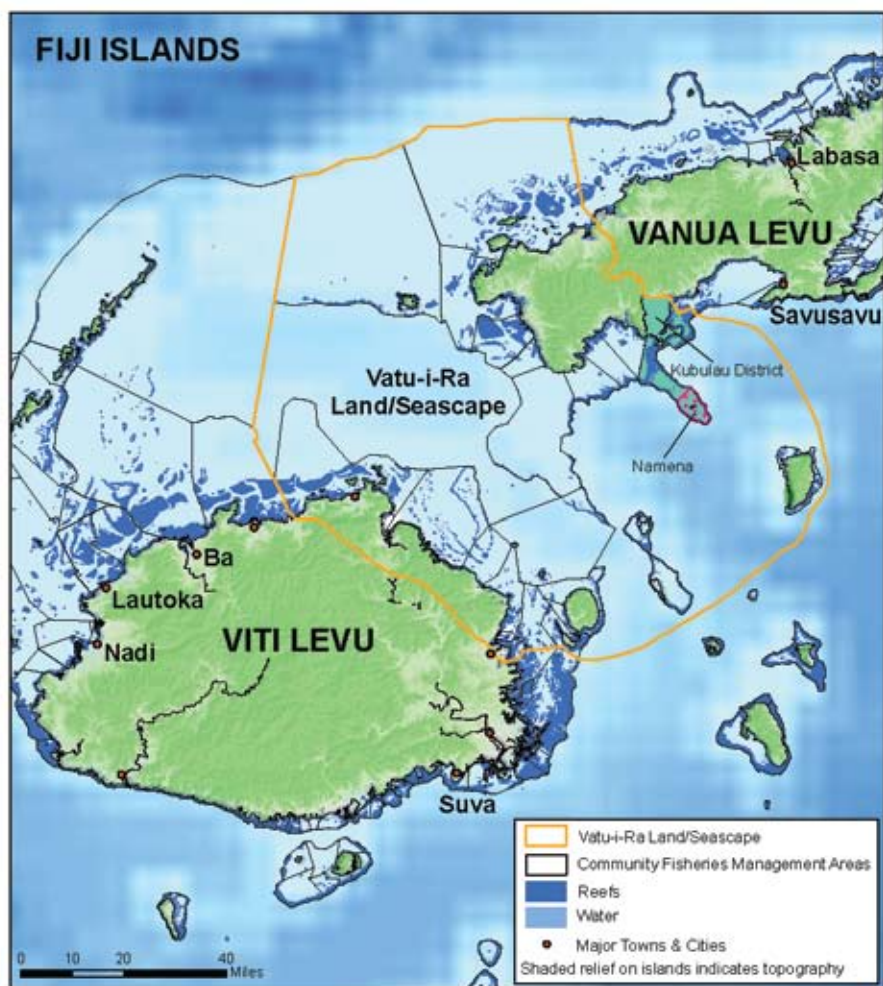
This extraordinary 7,500 square mile mosaic of forests, mangroves, seagrass meadows, reefs, deep channels, and seamounts is one of the Pacific’s last great wild places. It is home to the largest population of nesting hawksbills in Fiji as well as green and loggerhead turtles. It is one of the few remaining sanctuaries for the highly prized but globally endangered humphead wrasse, which animates the reef alongside bumphead parrotfish and white tip reef sharks. Local people thrill to frequent sightings of resident pilot whales and dolphins as well as humpback whales passing through on their annual migrations. Strong currents run through the deep Vatu-i-Ra channel, nourishing a magnificent diversity of more than 300 species of corals. These, in turn, sustain breeding colonies of frigate birds, black noddies, and red-footed boobies.

Vatu-i-Ra’s intact forests boast many species unique to Fiji – crested iguanas, tree frogs, and more than 120 endemic plant species. Free-flowing rivers connect the forest to the reef, allowing small but spectacularly colorful goby fish to migrate from upland streams to the coast and back.

Like most of Melanesia, the residents of the coastal villages around Vatu-i-Ra hold formal tenure rights over their land and traditional fishing rights over their coastal waters. Fisheries are a major source of food and income to these communities, as are revenues generated by Vatu-i-Ra’s world-renowned dive tourism. However, growing demands on the Land/Seascape—from unsustainable fishing to logging to expanding agricultural activities—combine to threaten its forests, rivers, and reefs as well as the vital connections between them and the services they provide to human and wildlife communities.

The Wildlife Conservation Society (WCS) and our local partners are engaged in an ambitious effort to mobilize science and traditional knowledge to achieve our 10-year vision for Vatu-i-Ra: healthy, resilient forests that are connected to and sustain rivers, mangroves and coral reefs, and where coral reefs teem with whales, turtles, sharks, humphead wrasse, and abundant food fishes that are managed to support livelihoods and Fijian culture. New investments of \$6.9 million in the work of WCS will allow us to realize this vision and secure this biodiversity treasure.

Animal and plant diversity abounds in Fiji (cover) where the land meets the sea and rivers and mangrove estuaries give way to luxuriant coral reefs (inside cover). Page 3, top: Millions of coral polyps have built steep reef walls where fairy basslets and damselfish hover above waving soft corals in explosions of color. Bottom: WCS area of focus in the Vatu-i-Ra Land/Seascape.



The future of Vatu-i-Ra is at risk: land is increasingly being converted for agricultural use, land-owners are tempted by lucrative logging propositions, and limited livelihood options encourage coastal communities to fish unsustainably.



Traditional fishing grounds have long-sustained coastal communities, but human population growth, increased market demand, new fishing methods that encourage over-exploitation, and encroachments by outsiders

on Vatu-i-Ra's fishing grounds combine to severely deplete reef fish and sharks. One-quarter of Fiji's most intact and unique forests lie within Vatu-i-Ra, yet most of them are being logged without careful planning or consideration for impacts on the full Land/Seascape. This deprives wildlife of habitat, fragments the landscape, and reduces water quality. Freshwater fish are stressed as they face competition from non-native tilapia in Vatu-i-Ra's rivers, while their migratory pathways from forest to sea are jeopardized by forest cutting that allows rivers to become choked with silt.

National environmental policy and governance systems often surrender biodiversity considerations to economic growth. Fisheries legislation is weak, market channels for live reef fish are expanding with little oversight, timber and mineral extraction is poorly regulated, roads and infrastructure are inadequately planned, and agriculture expands unchecked. At the same time, traditional management practices are eroding, and there is little local and national capacity to lessen the impacts of unsustainable resource extraction.

Climate change looms large for Vatu-i-Ra: predicted sea level rise, warming seas, and extreme climate events are likely to exceed the coping capacity of coral reefs, seagrass meadows, mangroves, forests, and the wildlife and local livelihoods they support. Fiji's leaders and coastal communities face the challenge of planning for climate change to build ecosystem and economic resilience and maintain the Land/Seascape, livelihoods, and cultural practices they inherited from stewards past.

This page: Large numbers of bumphead parrotfish protect the reef, keeping corals clean of algae and improving reefs' resilience to climate change. This page, top to bottom: Night spearfishing is one of the highest threats to reef fish populations, as parrotfish and grouper resting on the reef are easy targets. At the same time, logging of precious old-growth hardwoods continues at a rapid rate, resulting in increases of sediment that spills onto the reef which can damage and kill coral reef organisms.



WCS's vision for the Vatu-i-Ra Land/Seascape is healthy, resilient forests that are connected to and sustain rivers, mangroves and coral reefs, and where coral reefs teem with whales, turtles, sharks, humphead wrasse, and abundant food fishes that are managed to support livelihoods and Fijian culture.

Our vision directly supports the Fiji government's 2005 commitment to protect 30% of its marine areas and 40% of its remaining natural forest. To attain this vision, we shall hold ourselves accountable for the following ten-year conservation objectives:

- Populations of humphead wrasse, bumphead parrotfish, white tip reef shark, and vesi tree are maintained at least at their present abundance.
- Highly migratory freshwater gobies are maintained at current levels.
- Size and abundance of commercially important blue-spotted coral trout and giant clam increase by 20%.
- There is a 10% increase in frequency of sightings of humpback whales and green and hawksbill turtles, bolstered by formal protection of their migratory pathways.
- Marine areas under no-take protection increase by ten times and cover 30% of eight large fishing grounds of Vatu-i-Ra.

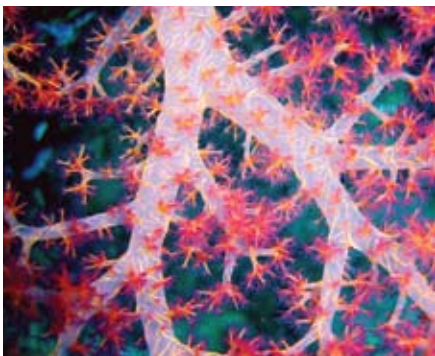
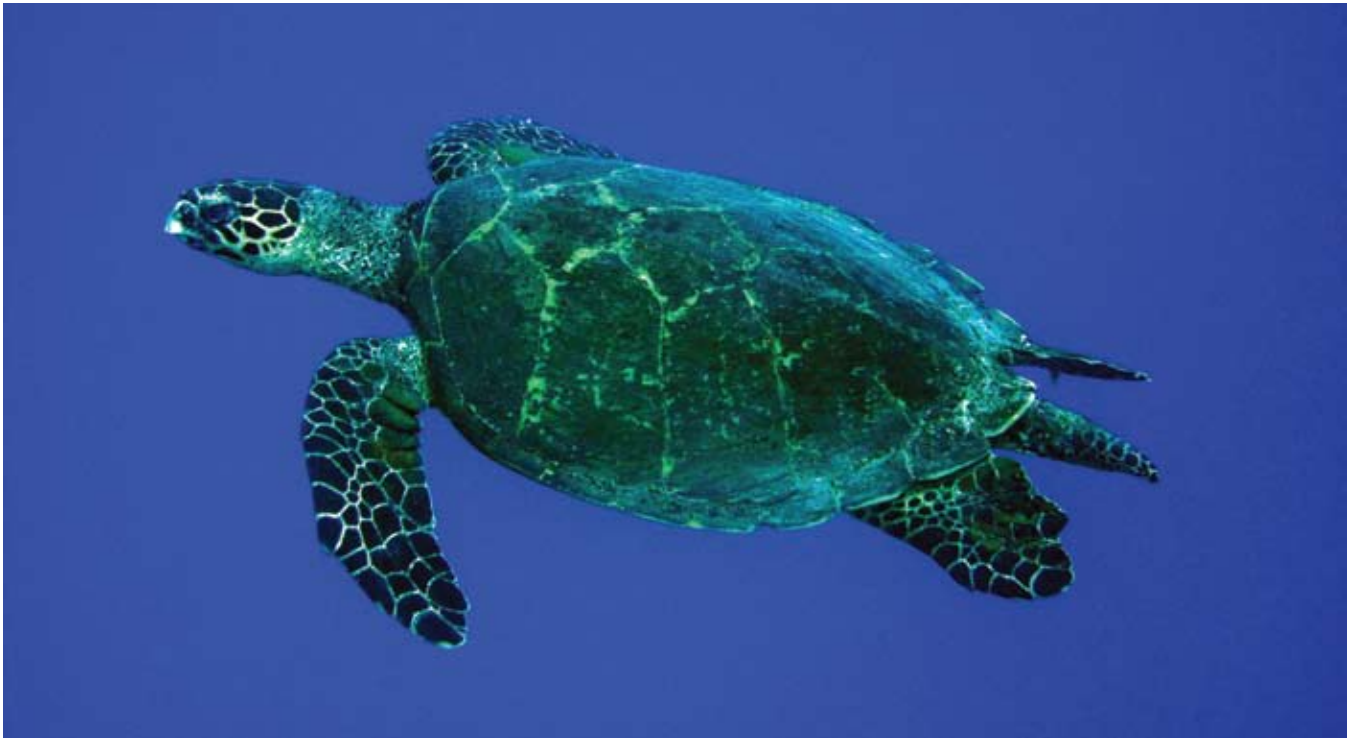
Highly threatened turtles, whales, sharks, humphead wrasse, bumphead parrotfish, and vesi trees are powerful icons of Fijian culture. Their presence is a strong measure of the health of this ecosystem, while gobies, migrating from the highest mountain streams all the way to the sea, highlight intact connections across the Land/Seascape. WCS will measure success by the status of these key species over the coming decade.

We will have realized our vision when:

- Locally managed networks of representative and interconnected protected areas effectively conserve priority species and sites across Vatu-i-Ra.
- Fiji's government and extractive industries apply knowledge based on WCS research to policy, legislation, and best practices.
- Vatu-i-Ra is sustainably financed and the benefits of conservation are shared equitably.
- Communities are empowered to be effective stewards of Vatu-i-Ra through environmental education and capacity building.

Clockwise from top: WCS envisions Vatu-i-Ra teeming with iconic species such as the hawksbill turtle (top), whitetip reef shark (middle), and humphead wrasse (bottom).

Middle right: Mangroves provide essential habitat for juvenile fish and seabirds and help secure fishing-based livelihoods. Middle left: Shimmering soft corals draw dive tourists and researchers from around the globe.



Major opportunities exist to conserve Vatu-i-Ra, with legal recognition of customary land tenure and fishing rights, national leadership to strengthen protected areas, and village commitment to sustainable management.

To ensure that locally managed networks of protected areas protect wildlife and improve livelihoods, WCS will:

- Apply field research to prioritize areas for protection, identify social and ecological vulnerabilities to climate change, and promote informed planning.
- Help communities establish at least eight locally managed protected area networks across Vatu-i-Ra which include no-fishing zones, gear restrictions, and adaptive management protocols.
- Improve governance of locally managed protected areas by training village resource management committees in monitoring, compliance, and enforcement.

To ensure that science guides policy, legislation, and industry practices, WCS will:

- Support fisheries legislation reform and development of protected area legislation that is informed by science.
- Promote national policy to halt unsustainable logging and conversion of forest to agriculture in critical connectivity and riverside areas.
- Improve national oversight of extractive industries, particularly logging and fishing, to eliminate unsustainable, and promote best, practices.
- Engage aquaculture industry and government to prevent the spread of exotic fish species, particularly tilapia, from areas that sustain native freshwater fish.

To ensure that Vatu-i-Ra is sustainably financed and conservation benefits are shared, WCS will:

- Identify and cultivate livelihood opportunities, seed funding sources for environmentally friendly businesses, and market opportunities.
- Develop payment and financing mechanisms such as user-fees and trust funds to compensate communities for conservation action.
- Work with partners to establish a conservation trust.
- Conduct pilot programs for reduced emissions from deforestation and degradation (REDD) to preserve intact forest.

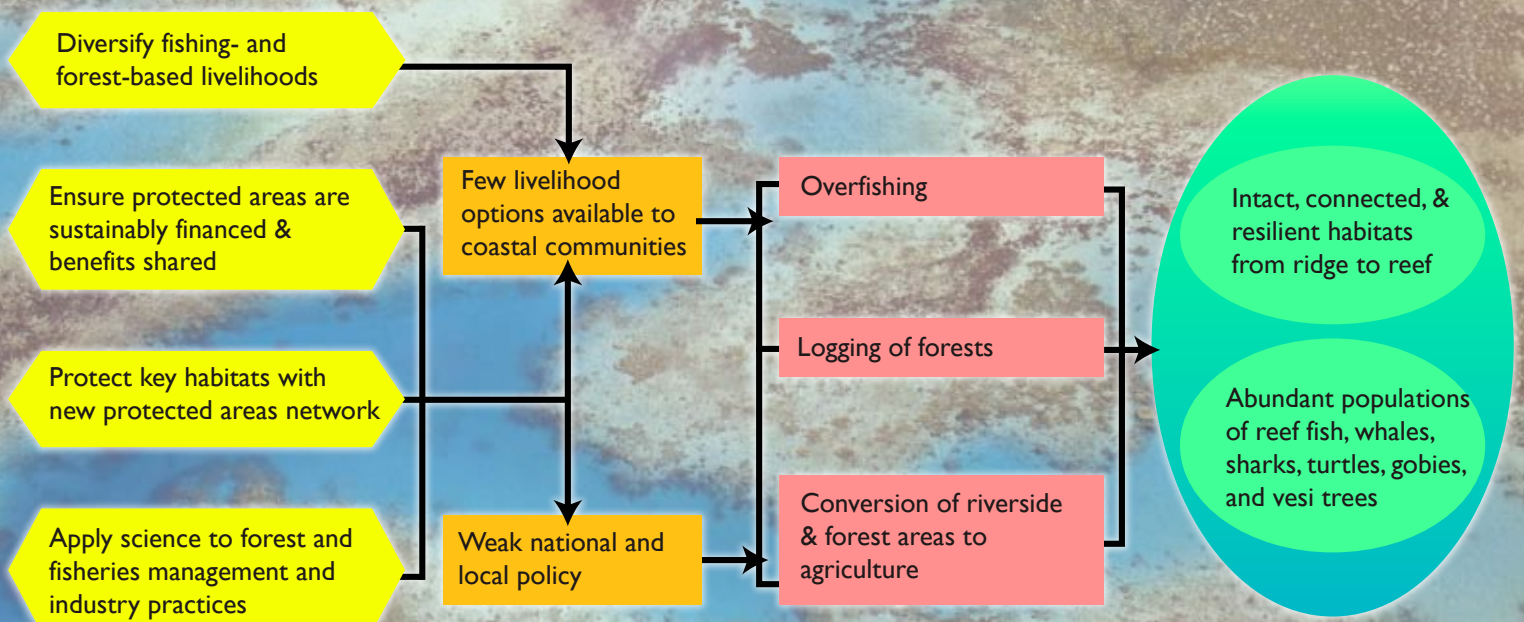
To ensure that communities are empowered as stewards of Vatu-i-Ra, WCS will:

- Build conservation leadership through field training, educational support, and professional mentorship.
- Provide technical assistance to village resource management committees.
- Create environmental education teaching materials and train teachers.
- Train resource managers to apply “ridge to reef” planning approaches (box, p. 9).

Clockwise from top: Massive gorgonian sea fans dwarf divers in the Namena Marine Reserve, one of the 20 marine protected areas that WCS has helped the communities of Kubulau district establish since 2005. Income to Kubulau generated from user fees from Namena helps fund scholarships and enforcement activities. An example of the causal relationships underlying WCS’s conservation strategy for acting (in yellow) to counteract threats (in red and orange) to achieve explicit conservation targets (in green).



‘RIDGE TO REEF’ is a holistic conservation and management approach that links conservation action across watersheds and adjacent coastal ecosystems. Wildlife depend on vital connections between land and sea, and this approach applies science-based management across the land/seascape, from forested ridges downstream to rivers and estuaries and further along to coastal mangroves, seagrass meadows, and coral reefs. Ridge to reef conservation is most successful when communities and government collaborate to develop management interventions that address key threats to wild places and wildlife of both land and sea—for healthy people and ecosystems.



Building on Fiji's strong culture of traditional management, WCS has provided scientific leadership to shape the conservation agenda and illuminate how the linkages between ecosystems, species, and society drive successful conservation.

WCS's team of Fijian staff helped Vatu-i-Ra's Kubulau district to implement a network that includes 20 community-managed marine protected areas where sustainable fishing is allowed plus three offshore no-fishing areas. This network features Fiji's first no-fishing protected zone and is the only one in Fiji to protect 30% of its traditional management area. Nearby, WCS helped to identify the site for a proposed priority forest reserve, supporting the government's commitment to protect 40% of its remaining natural forest and highlighting the linkages between healthy forests and healthy reefs. With partners, we developed a comprehensive 'ridge to reef' management plan for Kubulau—the first of its kind for Fiji—that has been endorsed by the Kubulau Council of Chiefs, which is vested with authority over the Seascape's traditional fishing area (see box, p. 9).

WCS leverages additional support for Kubulau through conservation finance, business management, and enforcement initiatives. WCS and partners have helped communities generate new revenues by establishing diver entrance fees for the Namena Marine Reserve within Kubulau. With partners, we have also provided training, equipment, and vessels to strengthen enforcement of the new protected area regulations.

Building Fijian conservation leadership is a cornerstone of WCS's work in Fiji. In addition to providing scholarships to rising Fijian scientists, WCS hosted the inaugural Fiji Conservation Science Forum in 2009 and has supported the use of protected area fees to fund local scholarships.

With many reef areas still intact and thriving, Fiji faces the challenge of deploying its conservation resources in a cost- and conservation-effective way. WCS's research has helped the government and communities identify national priority reefs, forests, and ecosystem connectivity sites. Our research is contributing to Fiji's new National Biodiversity Strategy and Action Plan, an obligation to the Convention on Biological Diversity which lays out a road map for wildlife conservation in Fiji over the next two decades.

WCS training programs enable community members to monitor recovery of important invertebrates, such as giant clams (top), and reef fish populations. Information collected is relayed to community members during planning workshops (bottom), where community leaders make decisions on the best ways to manage their natural resources.

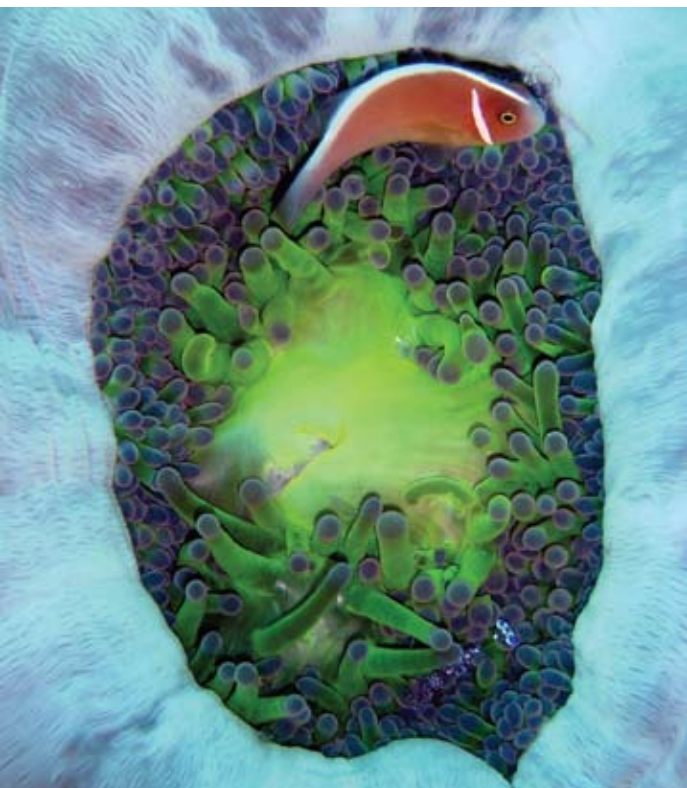


Safeguarding the splendor of Vatu-i-Ra's reefs and forests over the next decade will require an investment of \$14.6 million. Of that total, WCS activities to conserve the Land/Seascape will require \$11.9 million, leveraging investments by our partners in government and other conservation organizations of \$2.7 million.

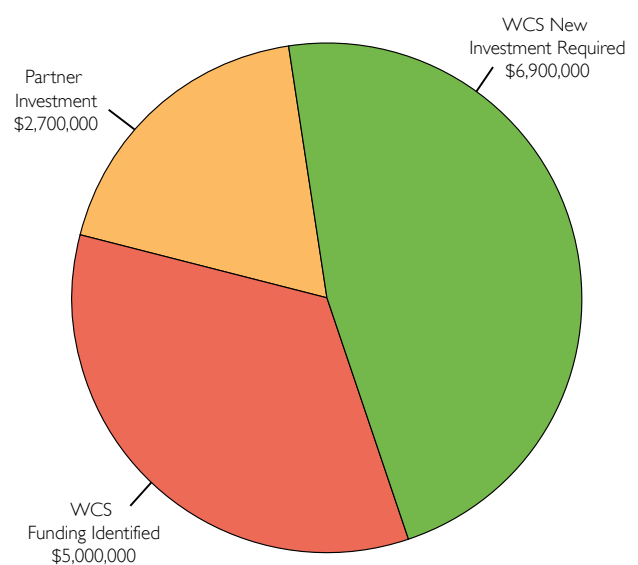
- *With \$508,000 per year over the next 10 years*, WCS will ensure that locally managed networks of protected areas conserve Vatu-i-Ra's biological treasures. Funding will allow us to conduct field research to inform design of eight new protected area networks, train management leadership for the reserves, and help local economies move away from unsustainable resource use.
- *With \$120,000 per year over the next 10 years*, WCS will ensure that Fiji's government and industries apply science to policy, legislation, and best practices. Funding will allow us to mitigate key threats to Vatu-i-Ra's forests and rivers, strengthen fisheries law and policy, and encourage industries to use best practices for logging and fishing.
- *With \$344,000 per year over the next 10 years*, WCS will ensure that conservation of Vatu-i-Ra is sustainably financed and its benefits are shared. Funding will allow us to help communities engage in sustainable enterprises, establish a conservation trust fund, and develop innovative mechanisms to help communities benefit from conservation action.
- *With \$218,000 per year over the next 10 years*, WCS will ensure that communities of Vatu-i-Ra are effective stewards of the Land/Seascape. Funding will allow us to expand professional training opportunities for rising conservationists across Fiji, build leadership for community-managed protected areas, and infuse educational materials with "ridge to reef" principles.

With strong local engagement in conservation, committed national leadership, and beautifully intact reefs and forests, Vatu-i-Ra presents an outstanding opportunity for conservation investment over the coming decade. New investments of \$6.9 million in the work of WCS will round out existing commitments of \$5 million to conserve this ecological and cultural treasure forever.

Clockwise from top: Namenalala Island rises from waters of the Vatu-i-Ra passage. Ninety percent of the island is protected as a forest reserve, creating a safe haven for nesting red-footed boobies and sea turtles. Pie Chart: New conservation investment of \$6.9 million will bolster \$5 million in identified WCS funding to leverage over \$2.7 million from partners to achieve our ten-year vision of conserving Vatu-i-Ra. Bottom left: An anemone fish swims safely among the protective tentacles of its purple host.



Estimated Investment in Vatu-i-Ra Land/Seascape 2010–2020



WCS IS GRATEFUL TO THE FOLLOWING FOR LEADERSHIP SUPPORT OF
OUR WORK IN THE VATU-I-RA LAND/SEASCAPE:

Anonymous Donor
The David and Lucile Packard Foundation
Gordon and Betty Moore Foundation
National Oceanic and Atmospheric Administration
The Tiffany & Co. Foundation

WCS'S SUCCESS IN THE LAND/SEASCAPE CAN BE ATTRIBUTED IN PART
TO OUR STRONG PARTNERSHIPS:

| | |
|---|---|
| American Museum of Natural History | Mainstreaming of Rural Development Innovations (MORDI) |
| Australian Museum Trust | National Trust of Fiji |
| Australian National University | Native Land Trust Board (NLTB) |
| Birdlife Fiji | Nature Fiji – Mareqeti Viti |
| Bishop Museum | Pacific Blue Foundation |
| Boston University | Pacific Islands Round Table for Nature Conservation |
| Conservation International | Partners in Community Development Fiji (PCDF) |
| Coral Reef Alliance | Protected Areas Committee (Fiji) |
| Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) | SeaWeb |
| Environmental Law Association of Fiji | Secretariat of the Applied Geo-Science Commission of the Pacific (SOPAC) |
| Fiji Government | Secretariat of the Pacific Community (SPC) |
| Fiji Locally Managed Marine Area (FLMMA) network | South Pacific Regional Environment Program (SPREP) |
| Fiji National Environment Council | University of Auckland |
| Foundation of the Peoples of the South Pacific International | University of Maryland |
| GEF Small Grants Program | University of Miami |
| Greenforce | University of Queensland |
| International Union for the Conservation of Nature (IUCN), Oceania | University of the South Pacific |
| James Cook University | University of Western Australia |
| Kubulau Resource Management Committee and communities | U.S. Embassy, Suva |
| | Wetlands International - Oceania |
| | Whale and Dolphin Conservation Society |
| | World Wildlife Fund, South Pacific Program |

OCTOBER 2009



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