Blue Ventures Conservation Andavadoaka, Madagascar

conservation education research

Prestigious conservation award presented to Velondriake president, and marine turtle conservation efforts receive huge boost with first nesting beach protected by local communities.

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Research Update, October to December 2008 *Edited by Sean Clement*

First harvest of sea cucumber farm for Velondriake villagers, p.2
Ambolimoke sells first sea cucumber harvest

Marine turtle protection underway in Lamboara, p.3
Village elders pass local law prohibiting turtle fishing

Research continues into coral spawning in Madagascar, p. 4
BV staff and volunteers attempt to witness event

Houseboat auction raises funds for family planning, p.5
Funding secures immediate future for clinic

Velondriake committee president wins "Nobel Prize for conservation"

The World Wildlife Fund (WWF) has announced that Roger Samba, president of the Velondriake Association, has been named the winner of the 2008 J. Paul Getty Award for Conservation Leadership. The annual award honours outstanding contributions to international conservation and carries with it a $200,000 prize.

As leader of the remote village of Andavadoaka, and with no formal conservation background, Samba implemented Madagascar's first community-run no-take zone for octopus, a locally-occurring species of critical economic importance to coastal communities, driving legislation on this and other laws to benefit the environment. This work influenced a national model for seasonal closures and contributed to the village being awarded the 2007 United Nations Equator Prize.

M. Samba receives the Getty award, pictured with his family

"Each year, the J. Paul Getty Award honours one of the world's top conservationists who is helping to build the leaders of tomorrow," said Carter Roberts, President and CEO of WWF–US, who administers the award for the Getty family. "This year the award honours Roger Samba, whose work – which originates at the community level and reaches far beyond – embodies the local to global approach so crucial in finding lasting solutions to environmental problems."

M. Samba has spent much of the last five years working with Blue Ventures to protect the region's fragile marine biodiversity and habitats. His work with Blue Ventures scientists has created a blueprint for empowering local communities to take on management of coral reefs and related habitats.

Since 2003, plans for creation of community-managed marine protected areas have spread from one village to more than 30 in the region. This work has inspired the development of ambitious alterna-

tive livelihood and environmental education initiatives, influenced national fisheries legislation, and brought unprecedented attention to marine and coastal conservation issues. Fishermen and women have travelled from across Madagascar and beyond to learn from the Andavadoaka-pioneered model.

Dr. Garth Cripps (BV Project Coordinator), Al Harris (BV Research Director), Roger Samba (Getty Award Winner 2008), Herilala Randriamahazo (WCS Madagascar)

"Under Samba's leadership," wrote Alasdair Harris, Research Director at Blue Ventures, who nominated Roger, "the Andavadoaka project proved so successful that eight neighbouring villages instituted their own protected areas for octopus in order to reap similar benefits. The national government of Madagascar in 2005 also used the project as a model to create similar seasonal closures across the country. The project is a proven example of how economic development can both inspire and benefit from the conservation of natural resources."

This year's Getty Prize recognises community leadership, one of three rotating themes of the award, which also honours political leadership and scientific leadership. Administered by the World Wildlife Fund (WWF), the J. Paul Getty Award for Conservation Leadership is one of the world's most prestigious awards devoted to conservation. The award, currently sponsored by J. Paul Getty's son Gordon and his family, is intended to encourage conservation innovation and heighten public awareness of the need for conservation. Nominees for the Getty Award are submitted to WWF by conservation organisations around the world and the winner is chosen by an independent jury of individuals from a wide and distinguished array of expertise.

Established in 1974 as The Getty Prize by the late U.S. billionaire businessman J. Paul Getty, the award was later renamed the J. Paul Getty Award for Conservation Leadership. In July 1983, former US President Ronald Reagan, in awarding that year's winners in the Rose Garden of the White House, described the Getty Prize as "the Nobel Prize for Conservation." Previous winners of the Getty Award have included world renowned scientists Dr. Jane Goodall, Sir Peter Scott and Pan Wenshi.

The award is unique in that it not only recognises today's leaders in conservation but also helps develop conservation leadership for tomorrow by establishing graduate fellowships in the name of the winner and J. Paul Getty. Samba will use his award to establish fellowships for students pursuing masters, doctoral, and post-doctoral degrees in conservation-related fields at a university of his choice in Madagascar.

Roger Samba was officially announced as this year's winner at a presentation ceremony on October 20th in Antananarivo, Madagascar's capital.

BV sea cucumber farms yield first harvest

On the 21st December, the villagers of Ambolimoke received a welcome early Christmas present when the first harvest and sale of sea cucumbers from the Blue Ventures-backed mariculture project took place. A total of 160 sea cucumbers were harvested by the villagers of Ambolimoke and subsequently purchased by Madagascar Holothurie. The majority of this harvest had reached commercial size after only 11 months with a survival rate of over 80%. This success for Blue Ventures, and the Vezo communities of the Velondriake network, represents the first fruit of a project first trialled in January 2007 with the purpose of providing the communities within Velondriake with alternative means of generating income for marine resource extraction. In partnership with the University of Toliara's IHSM, the fisheries export company Copefrito, and Madagascar Holothurie, Blue Ventures intends to establish sea cucumber mariculture as the primary alternative source of income for families in the region.

To ensure maximum yield, the harvest is carried out by hand at night to ensure minimum disturbance to the pens

This first harvest and sale is a major success for the village of Ambolimoke and is paving the way for other communities to follow in their footsteps. With new funding from ReCoMaP (Regional Programme for the Sustainable Management of the Coastal Zones of the Countries of the Indian Ocean Countries), the project has already continued to work with the villagers of Ambolimoke. Over the next 2 years, families in 4 villages within Velondriake will receive financing for four pens over the

first year. Each pen, measuring 12.5m x 12.5m, is stocked with 300 juveniles. The grow-out cycle is estimated to take 12 months - with stocking and subsequent harvesting occurring every 3 months, after the first year, each pen will provide a family with a net revenue of US$180, which equates to an average income of US$60 per month. The species of sea cucumber harvested (*Holothuria scabra*) is one of the most coveted types of *bêche de mer* in the Asian market, and it is hoped that the villagers will be able to take advantage of higher sale prices caused by increased demand over the period of Chinese New Year.

This unique project pioneered by Blue Ventures and its partners recently attracted funding from ReCoMaP to expand this mariculture initiative to other villages in Velondriake. "Sea cucumber farming is an ideal alternative livelihood for the Vezo as it is an activity that easily fits into their daily lives which are based around the sea," said Project Coordinator, Georgina Robinson. "It is relatively simple, with minimal labour and investment and has no adverse impact on the environment; in fact the project will also help to regenerate severely depleted natural populations in Velondriake".

By the end of 2010, it is expected that 750 people will directly benefit from income derived from this new activity. As Madagascar is one of only three countries in the world in which commercial scale mariculture takes place, it is hoped that villagers from outside of Velondriake can establish their own no-take zones to be stocked with larvae and juveniles for future harvests. It is also hoped that with the continued success of this programme, Blue Ventures, in collaboration with Copefrito, will be able to initiate a seaweed aquaculture project before the end of 2009, providing further alternative livelihoods to the communities living in Velondriake.

Turtle nesting beach protected

Following the successful protection and hatching of two turtle nests on the same beach within Velondriake, the village of Lamboara has officially declared that the beach, thought to be one of the only remaining active nesting beaches within Velondriake, is now protected and will remain so for the duration of the current turtle nesting season.

Blue Ventures researcher Thomas (left) with Lamboara villagers and sign designating that the beach is protected

As reported in the June-September Research Update, 92 live green turtle hatchlings were witnessed emerging from a monitored nest on a beach near the village of Lamboara on 26th June 2008. Excavation of a second nest on the same beach revealed a further 98 hatched eggs, with the majority thought to have successfully reached the sea. At the time, this represented the first major success for a regional campaign to raise public awareness of the plight of the local turtle population, the ultimate aim of which is to establish a marine turtle conservation plan within the Velondriake community-managed marine protected area. Following the successful hatching of the two nests, the village of Lamboara took the decision - unprecedented in this region of Madagascar - to close the beach and raise public awareness in the surrounding areas regarding the need for conservation of the local turtle population.

The formal ceremony, or *Fomba*, to mark the closure of the beach took place on the 7th October. As is customary for a Malagasy Vezo *Fomba*, toasts and dedications were made to the village ancestors and the women of the village partook in traditional song and dance. At the end of the ceremony a traditional local law or *Dina* was put in place by the village elders forbidding both the targeting of live turtles in the waters surrounding the beach and the raiding of any nests for eggs. Members of the village community have also agreed to notify Blue Ventures researchers whenever any signs of nesting are discovered so that the impacts of this decision on the local turtle population can be monitored.

Further warnings are erected to signify protection of turtle nesting beach

Perhaps most significantly, the decision to close, protect and

monitor the beach was made entirely by the community of Lamboara and the Velondriake management committee. In the past, financial incentives were offered to villagers to report and protect any turtle nests discovered. In this case, there are no incentives offered to the village other than the knowledge that these actions are helping to turtle populations in the region which in itself, could be a priceless development.

'Sex on the reef'

In September Blue Ventures started its annual monitoring of the reproductive maturity of one species of hard coral genus *Acropora* in order to determine the date of the annual coral spawning event for the species in this region of the Mozambique Channel. Hard corals form the foundations of coral reefs, producing the calcium carbonate skeleton that comprises much of a coral reef's physical structure. The majority of hard coral species release egg and sperm bundles in a mass spawning event once each year. The synchronisation of their release of eggs and sperm is believed to be controlled by a number of environmental cues, including water temperature and the lunar, tidal and 24-hour light cycles. Spawning can be a multi-species event with eggs being released over the course of a period of a few days. These synchronised spawning events also trigger spectacular mass feeding events in the surrounding waters as reef dwellers leave their shelters to feed on the abundant new plankton. This, in turn, attracts the presence of larger predators, making coral spawning events an excellent opportunity to observe the diversity of species present on a reef.

It is commonly hypothesised that coral synchronise the release of their gametes because the resulting clouds of reproductive material provide too abundant a food source to be entirely consumed by predators, thus increasing the chances of successful fertilisation and dispersal occurring.

Acropora sp. coral eggs visible in situ

A coral's preparation for spawning may be monitored by studying the maturation of eggs within the coral tissue. White eggs can normally be seen months before the event, and when these eggs become pigmented orange this usually indicates that spawning should occur within the following 2-3 weeks. The date of spawning may then be determined by noting the time of disappearance of pigmented coral eggs from the coral colonies.

Orange pigmented eggs visible to the naked eye were found in one locally-abundant species of *Acropora* on 14th November.

Subsequently, a number of colonies of the species were tagged in the field and samples taken daily.

By regularly surveying the successive stages of reproductive maturity of the *Acropora* species in this way, marine biologist Nikkita Lawton was able to accurately determine that spawning occurred on the night of the 28th/29th November 2008, the night after a new moon in Andavadoaka. Observations of 'orange dust' on the water surface on the 29th November further supported this conclusion.

Acropora sp. fragments containing unfertilised eggs

Volunteers assisted in this research by taking part in regular night dives in an effort to witness the event take place at first hand. The information collected by Blue Ventures scientists and volunteers should lead to a more accurate prediction of when spawning events will occur in future and hopefully next year's event will be witnessed *in-situ*. Witnessing the coral spawning will also provide an opportunity to record the species drawn to these events and the behaviour displayed in response to the sudden and plentiful provision of food.

This important study of coral reproductive behaviour constitutes the first confirmed observation of coral spawning in Madagascar or the Mozambique Channel.

Blue Ventures socioeconomic coordinator accepted on the Rare Pride Campaign for Conservation Leadership

Gildas Andriamalala, Blue Ventures' Socioeconomic Research Coordinator, has won a scholarship to join a conservation leadership development programme in Washington, D.C. The Rare Pride leadership development programme is a course of study of-

fered to scholars from the developing world with a view to providing the skills needed for them to build and implement a campaign of raising conservation awareness in their home countries.

Gildas Andriamalala

Established in 1973, Rare is a conservation NGO working to promote conservation around the globe by conducting campaigns to raise awareness and change hostile or indifferent attitudes to conservation and the beneficiaries of conservation work. Rare was the driving force behind one of the world's first high profile marine conservation campaigns in 1977 when, along with Friends of the Earth and the Animal Welfare Institute, they launched the iconic "Save the Whales" slogan, which is running globally to this day.

As a key component of the MPA research and development process in Velondriake, Gildas has spent two years in Andavadoaka studying the socioeconomic implications and effects of the establishment of the Velondriake network.

The Rare Pride programme lasts 2 years, with phases in Madagascar and Washington, D.C. Gildas will spend the first 3-month phase studying in Washington before returning to Madagascar. The programme has been running since 1978 and, to date has helped scholars implement 125 successful campaigns in 49 different countries. Until recently, many of the campaigns have taken place in the Caribbean and Central America, where the program originated. So far none have been implemented in Madagascar, making Gildas the first Malagasy scholar to be enrolled on the scheme.

Family Planning auction

A WWII houseboat in Shoreham-by-Sea became the unusual setting for an auction to raise funds for Blue Ventures' family planning programme, which provides a vital and welcome service for rural fishing communities, and takes an alternative approach to coral reef conservation. The auction at the end of November, presided over by Tim Loughton, MP for East Worthing and Shoreham, and Dr Vik Mohan, Medical Advisor to Blue Ventures and pioneer of the family planning programme, sold lots such as SCUBA diving courses at the London School of Diving, beauty treatments by Aveda and a signed copy of Hilary Bradt's guide to Madagascar. Even renowned explorer Paul Rose joined in, pushing up bids on a signed copy of his BBC Oceans book over the telephone.

Dr Vik Mohan and Becky Hill, founders of the family planning programme, get into the spirit of things.

The event, hosted by Blue Ventures field medic Becky Hill, secured funding to assure the immediate future of the first family planning clinic in the Velondriake region. "With women in rural Madagascar having as many as 17 children, family planning information and facilities are urgently needed" reported Becky during the auction. "Families are welcoming the work of the clinic in the village of Andavadoaka, the only clinic of its kind in the region and, with more funding, we hope this vital service will be extended to neighbouring villages and towns".

Coral reef surveying for WWF

In December 2008, Blue Ventures carried out reef surveys for WWF near the villages of Ambohibola, Itampolo, Beheloke and Maromena, south of Toliara. These villages lie some 350km south of the focus of Blue Ventures' work in Velondriake. The overall purpose of the project was to survey reefs and fishing sites adjacent to each village to gain an understanding of the health of the region's coral reefs prior to each village establishing local fisheries management schemes. The objective of the research in each village was to survey a fringing, barrier and patch reef at each site to give a broad representation of the status of the marine environment in each region, in order that protected area management strategies could be developed based on a sound understanding of the underlying ecology of the region.

The majority of these reefs had never been dived or scientifically surveyed prior to Blue Ventures' visit. At each village, 3 to 4 dives were required to complete a number of quantitative rapid assessment surveys. These included benthic transects (assessing coral, algae and reef composition), fish diversity and biomass transects, and urchin and sea cucum-

ber abundance surveys to provide the baseline data against which to compare future surveys and to assess the influences of potential management programmes.

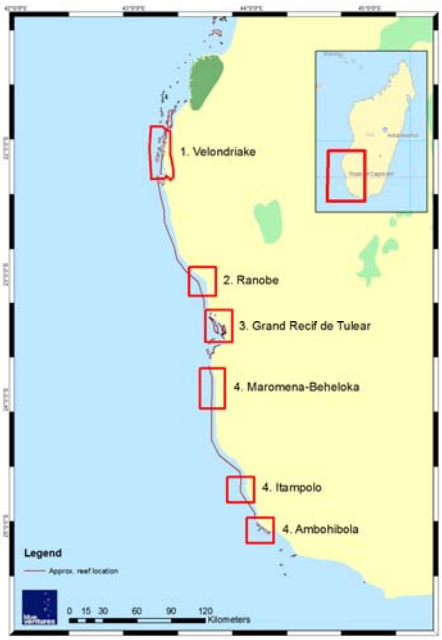
The first site to be surveyed by the Blue Ventures team was adjacent to the village of Ambohibola, a small and very remote settlement located on a sand spit, protected by an offshore barrier reef. Adverse weather delayed the start of the research but allowed for conversation with local fishermen to establish the locations of sites with high coral cover.

The Blue Ventures team delivered a presentation to the village on the Velondriake network, providing an important opportunity for villagers to discuss the different mechanisms for managing their marine resources. Discussions showed that there is little use of nets on local reefs. Fishers from this community show a preference for fishing off the barrier reef for sharks and large pelagic fish when conditions are favourable, but then concentrate their efforts on line and spear fishing within the lagoon when the weather deteriorates. These patterns of fishing behaviour provide a possible explanation for the good health of the nearshore reefs, which in many other area of southern Madagascar are generally in poor condition.

Itampolo was the next village visited by the research team. Much larger, busier and populous than Ambohibola, and with better connections to the markets in Toliara, the majority of reef sites were not in as good health as those surveyed in Ambohibola. Following this, the team visited Beheloke, where the transit from Itampolo gave memorable encounters with dolphins and turtles.

Beheloke's surveys visited a range of thriving reef sites with very high fish diversity and abundance, including notable encounters with three zebra sharks

The last village visited was Befasy, which included a site that is already designated as a future MPA zone, covering an area in excess of one square kilometre.



Map showing locations of sites WWF survey sites in relation to Velondriake MPA.

From first appearances the reefs surveyed in the southern villages, such as Ambohibola and Itampolo, appear to be in better health than those reefs closer to the main markets and fisheries collection companies in Toliara. This will become clearer following analysis of the data, which will be presented to WWF at a meeting in Antananarivo in February 2009.

Western Indian Ocean species database goes online

WIOMweb - an interactive marine species photo identification database for the Western Indian Ocean, researched and built by Blue Ventures – has gone online.

WIOMweb offers students, researchers and scientists a photographic reference guide to the marine and coastal species of southern Madagascar and the West Indian Ocean.

Work on WIOMweb originally started as a way to document the diversity of species recorded at our scientific research site in the remote village of Andavadoaka. Prior to our arrival in Andavadoaka, there had been no data collected on the species living off the region's coasts.

www.WIOMweb.org

Currently, more than 1,500 species from Madagascar (Andavadoaka & Toliara), Chagos and Rodrigues have been photographed, identified and placed in the database. It is estimated that more than 4,000 species will ultimately be uploaded into the database as additional information is gathered from fieldwork and other research institutions in the Western Indian Ocean.

WIOMweb allows visitors to navigate from kingdom to species levels with interactive links at each stage. The species pages include a taxonomic breakdown, species specific information, preferred habitats and conservation status from the IUCN Red List.

Picture of Chelonia mydas available on www.wiomweb.org

Although WIOMweb currently focuses on marine plants and animals from Madagascar, Blue Ventures are working with other research institutions to upload data on species across the entire Indian Ocean area.

WIOMweb is still being tested and developed, but please browse the current version at:

- www.wiomweb.org

Conferences and workshops

On the 6th December 2008, Dr Vik Mohan, Medical advisor to Blue Ventures gave a presentation at the 2008 Reef Conservation UK conference outlining the provision of family planning services by Blue Ventures in Andavadoaka.

The increasing population of coastal communities, and the subsequent increase in pressure on coastal resources, is widely and increasingly recognised as one of the greatest manageable threats to coral reefs. In keeping with one of the three objectives of the International Year of the Reef (IYOR), Dr Mohan's presentation gave an outline of the development and implementation of the solutions offered by Blue Ventures to reduce this threat in southwest Madagascar.

Due to their isolated nature, coastal communities in southwest Madagascar have limited or no access to family planning services. Most girls become pregnant before their sixteenth birthday and women in the region are reporting having up to seventeen children. Current population trends estimate that Madagascar's population will doubles in twenty years. For communities that are almost exclusively reliant on dwindling coastal resources for subsistence and family income, this poses an additional strain on resources that are already highly overexploited.

RCUK Logo

After identifying a huge unmet need for family planning services, and holding discussions with the community on how best to meet this need, Blue Ventures, under the guidance of Dr Mohan, established a family planning clinic in the village of Andavadoaka in [2007]. This clinic is the first of its kind in the area, and possibly the first family planning service to be set up by a marine conservation NGO.

One year on, the successes and challenges of this project were presented, along with plans for the next phase of the project, and possible areas for future research. By successfully establishing a family planning clinic, Blue Ventures has demonstrated that it is possible for marine conservation NGOs to tackle this important issue within partner coastal communities. By delivering this service through an established expedition team, with the expedition Medical Officer running family planning clinics, Blue Ventures have developed a simple, low cost model for a service that could easily be adapted and replicated by other marine conservation NGOs.

The presentation was well received by all present and drew comment from many attendees, including reference to the problem of rapid population growth in coastal communities as the 'elephant in the room of conservation'. If this issue is not tackled effectively, it threatens to exacerbate the problems faced by resource-dependent coastal communities. Following the success of the service in Andavadoaka, we hope to expand the work to many other villages in the Velondriake area.