RESEARCH UPDATE WINTER 2009

blue ventures
discovery through research

BLUE VENTURES CONSERVATION

Marine expansion of the Kirindy Mite National Park

- Social marketing campaign in Velondriake MPA
- Third seasonal closure of mangrove reserves
- Octopus scoping visit to Rodrigues
- News from Malaysia

New Blue Ventures project: marine expansion of the Kirindy Mite National Park

November 21st 2009 marked the official inauguration of Blue Ventures' second field site in western Madagascar, Belo-sur-Mer, located approximately 50 km south of the regional capital city Morondava. In collaboration with Madagascar National Parks (MNP), Blue Ventures is embarking on an ambitious conservation programme to create a marine extension of the existing terrestrial Kirindy Mite National Park, stretching between Belo-sur-Mer and Andranopasy, in the Menabe region of southwest Madagascar.

The two main objectives of the project are:

- To plan and establish a marine extension to the Kirindy Mite National Park, seeking to develop both conservation and social development goals, integrating both scientific and community participative approaches to MPA zoning and development.
- To build capacity and infrastructure in the region for the development of alternative coastal livelihoods and the sustainable use of natural resources.

The coastal zone of the Kirindy Mite extension is characterised by offshore island reefs, large mangrove forests and extensive seagrass beds. The team is currently based in the village of Belo-sur-Mer, from where they can easily visit the coral islands and local communities and collect baseline information for the region. These data will be used to develop long-term community conservation and resource management plans in collaboration with Madagascar's national parks service.

Baseline ecological surveys

Prior to the establishment of the research site, the researchers in Belo determined the current status of the marine and coastal resources in the region. Throughout October the team visited the offshore coral islands and located, with the help of local fishermen, fringing reefs suitable to

IN THIS ISSUE

Permanent seagrass reserves at sea cucumber farms P3
Almost 10 hectares of permanent seagrass reserves created

Family planning work extends beyond Velondriake P5
Expansion programme to 5 villages bordering Velondriake

Open day in Andavadoaka to celebrate BV's 50th expedition in Madagascar P6
Andavadoaka's community join BV staff to celebrate

BV staff and volunteers visit Kampong Mukut, Malaysia P7
BV works with the local school to raise awareness of environmental issues

conduct surveys to establish the condition of the region's coral habitats. Underwater SCUBA assessments were used to measure coral cover and recruitment, fish abundance, diversity and biomass, and invertebrate species and prevalence.

Above: Charlotte Gough, Project Coordinator, asseses the reef at Kirindy Mite

The baseline surveys revealed reefs of varying condition, from areas with pristine coral teeming with marine life – amongst the healthiest documented in the Mozambique Channel to date - to large expanses of rubble and bleached/dead coral, probably a result of cyclone Fanele, which affected the region in January 2009. A noticeable similarity between all the reefs, however, was the small number of pelagic fish present – a likely effect of the increasing fishing pressure in the region.

Above: Large tabulate corals at Kirindy Mite

Community-based conservation in a different context

The team's focus is now on developing working relationships with local inhabitants and migrant fishermen who seasonally inhabit the offshore islands, in the interest of gaining a stronger understanding of local knowledge and resource use patterns. In early December 2009, an initial trip was made to the southernmost island, Nosy Andriamitaroke (approximately 50 km south of Belo-sur-Mer), to carry out a census of the fishermen and their families, and investigate the fishing gear they use and target fisheries species. Focus group interviews were held in the evenings, a map of the area detailing where certain gears are used was developed, and the fishermen's collective views of the current state of marine resources was assessed.

Historically, seasonal migrations of the local community up and down the west coast of Madagascar have confounded conservation efforts, especially in situations of traditionally weak user rights, such as that of marine tenure in Madagascar. Migrant fishing populations from the south, driven by declining resources in these regions, are pulled by the still relatively productive populations of sharks and sea cucumbers in the Belo-sur-Mer area. They stand to have their livelihoods highly impacted by the implementation of an MPA, and therefore, must be effectively integrated into the MPA design and management structure. It will prove highly challenging to find an acceptable middle ground for marine resource management between the views of the mainland populations - who claim jurisdiction over the islands - and the migrants, who spend up to 10 months at a time living on these isolated offshore islands.

Implementation of community-based resource management in the Belo-sur-Mer area promises to present challenges and opportunities not yet encountered in the Velondriake Marine Protected Area (MPA) (www.livewiththesea.org), as the concerns and interests of a broader range of stakeholder communities – many of them nomadic - will have to be considered.

Whereas the Velondriake MPA has evolved from a grassroots initiative to the locally-managed marine area that it is today, with all management decisions and enforcement of regulations coming from the stakeholder communities themselves, the offshore coral cays of the Belo-sur-Mer area have been under temporary protected status with the Malagasy National Parks Service (MNP) (www.parcs-madagascar.com) since 2005. MNP's plan to develop a marine component to the adjacent Kirindy-Mite terrestrial park means that a co-management model will be employed, with MNP providing permanent support to stakeholder communities. While the government will play a larger

Above: Dada and Gaby conduct fisheries landings surveys on the beach in Ankevo

enforcement role under this co-management model, community ownership of the decision-making process regarding zoning and restrictions will be imperative to the success of the new MPA.

One of the biggest perceived threats in the region is from unregulated industrial shrimp fishing trawlers that originate from Morondava, Mahjunga and the northwest of Madagascar. Therefore the protection of the park will not only require careful community management to maintain sustainability of local community fisheries but will also need to focus on protecting these reefs and other marine habitats from illegal exploitation from industrial fisheries.

The biological and ecological datasets will be combined with data collected on local traditional knowledge and socioeconomic information about resource use; community perceptions of resources and management techniques; and baseline community economic data, to develop the best model for the evolution of a community-

managed marine park. This will serve to promote sustainable use of natural resources as well as broadening community development through ecotourism and the establishment of alternative livelihoods.

Permanent seagrass reserves established at sea cucumber farms

Sea cucumber aquaculture has been promoted by Blue Ventures as an alternative sustainable livelihood for Vezo fishers within Velondriake since 2008. The high value of some species on Asian markets makes them a lucrative commercial crop for export from the region. Over the last year, the ongoing evolution of the sea cucumber aquaculture project has led to some encouraging successes which have strengthened the overall management structure of Velondriake. At the same time the project has also encountered a number of challenges inherent to any community-based development project.

On 3 December 2009, a delivery of 6,600 juvenile sea cucumbers (Holothuria scabra) was received from Madagascar Holothurie, in collaboration with the fisheries export company COPEFRITO and the Velondriake Committee, and divided between 21 pre-arranged family groups in three villages. The delivery of juveniles coincided with the purchase of 260 adults from the pens by COPEFRITO from Tampolove and Ambolimoke on 4th December. Unfortunately, this number was lower than expected due to a number of incidents of theft from the pens during the growing period of the individuals, a factor that hs highlighted the need for more effective surveillance of the pens.

In order to minimise the risk of future theft, each village has implemented a number of measures, including the creation of village '*Dinas*', traditional local by-laws, relating specifically to sea cucumber

Above: Monitoring and surveillance of sea cucumbers

aquaculture. These include rules, regulations, fines and protocols to deal with infractions. Each village has also been encouraged to implement a nightly surveillance programme during spring low tides as a pro-active means of preventing poaching. The surveillance is undertaken on a rotational basis, with one member from each team present at all times. Some villages have even imposed fines for non-attendance at guarding duties.

Each village has designated the area surrounding the sea cucumber pens as marine reserves. Although motivated by security concerns rather than conservation objectives, a beneficial consequence of this protection is that the alternative livelihood scheme has inadvertently led to the creation of almost 10 hectares of permanent seagrass reserves. Each of the village *Dinas* bans any activities within the

Village	Reserve area (ha)
Nosy Be	2.32
Ambolimoke	4.56
Antseragnasoa	1.13
Tampolove	1.64
TOTAL	9.66

Table: Areas of seagrass reserves in Belo-sur-Mer

seagrass reserves, including fishing. Pirogue (dugout canoe) owners are allowed to pass through at high tide, and at low tide only the sea pen owners are allowed into the area to carry out specific activities related to sea cucumber aquaculture, including monitoring and performing regular maintenance. These new permanent seagrass reserves are being incorporated into the overall Velondriake *dina* and the new management plan to strengthen the institutional framework of the project.

Above: Maintenance of sea cucumber pens

One of the anticipated additional benefits of the project will be to increase the reproductive output of local sea cucumber *H. scabra* populations through the creation of a network of protected spawning aggregations. It is hoped that this will help to rebuild and prevent the collapse of local stocks which are currently severely overexploited.

The project is supported by funding from ReCoMaP (Regional Coastal Management Programme of the Indian Ocean Countries).

Social marketing campaign in Velondriake Community Managed Protected Area

After completing the campaign project planning phase in Madagascar, Gildas Andriamalala returned to the United States in September 2009 to continue his second university phase on Social Marketing and Communication at Georgetown University, Washington, D.C.

During that time the following goals were set up in order to prepare an effective social marketing campaign that will be implemented over the coming year. Gildas' campaign aims to:

- Leverage effective social marketing and communication skills to achieve conservation results in tackling destructive fishing in southwest Madagascar.

- Implement a social marketing campaign with an effective and targeted messaging strategy to achieve the results.
- Build his own capacity of the campaign manager to utilise tools to manage the implementation of the project.

To achieve these goals, Gildas completed courses on several practical activities and visited other campaign activities within Washington itself. One of the most exciting experiences was to be able to listen to the advice of qualified experts in social marketing. One of the specialists, Parag V. Mehta, managed President Obama's outreach efforts and gave an inspiring presentation to all the campaign managers.

For the second time since leaving Madagascar to start his training in the US, Gildas was given the opportunity to give a formal presentation on his planned campaign in the Velondriake marine protected area (MPA) (www.livewithsea.org) to Rare (www.rareconservation.org) board members and donors. The presentation was attended by the Ambassador of the Philippines, a committed Rare (www.rareconservation.org/programs) programme supporter because of his country's interest in marine resource management.

Gildas is currently preparing his campaign activities, materials and messaging strategy in Madagascar. His campaign will be focusing on the elimination of destructive fishing practices, in particular beach seine netting and poison fishing, which threaten nearshore marine resources and habitats throughout the Velondriake MPA. The campaign objective will be based on motivating communities in the enforcement of their local laws (Dina) for better management of their community MPA. The campaign will be targeting three key groups of stakeholders: village leaders, pirogue owners and fishers that practice beach seining.

To follow the Velondriake campaign, please visit: http://www.rareplanet.org/en/campaign/campaign-sustainable-fisheries-managementandavadoaka-coast.

Above: Seine netting -one of the destructive fishing practices Gildas' campaign is focusing on eliminating

Velondriake's participatory management plan

In November 2009, the Velondriake Management Committee and Blue Ventures began work on what will become another landmark first for grassroots conservation in the Indian Ocean.

According to the World Database on Protected Areas 2009 (www.wdpa.org), there are 15 MPAs in Madagascar. Of these sites, 13 have temporary or permanent protected status from the national government. All of these have either submitted or are preparing a park management plan, the focal point of any protected area. These plans describe the

Above: Aerial view of Nosy Hao, which is included in plans for the Velondriake

objectives of the park and its main conservation targets, as well as the threats to these targets. Most importantly, MPA management plans outline the MPA's strategy for mitigating and alleviating these threats in order to ensure the integrity and sustainability of the park. These documents also outline the governance structure and zoning plan of the MPA. Management plans are usually written by expert technicians, often over a period of six months to two years.

While nearly all of the marine parks in Madagascar are built loosely upon a community management or co-management model (shared management between government or NGO and community), none of these parks have yet taken a fully participatory approach to the creation of their management plan. Plans are usually drawn up by experts and then validated by communities in large public meetings. While communities are given a chance to give their input, there is very often a difference between the objectives of the park and the objectives of the community. Blue Ventures and the Velondriake Management Committee have decided to take a different approach, by letting the community lead in the creation of the management plan.

In a series of workshops and village tours, community members are deciding on the conservation targets, threats to sustainability, management objectives, park governance structures and zoning plans. A participatory management plan grows out of the continued success that Velondriake has had in executing smaller-scale management efforts, such as temporary and permanent no-take-zones, and cracking down on illegal and destructive fishing methods. As the Velondriake area evolves to become an officially recognised park, it is only natural for the community to continue to lead the way, modelling successful community-based adaptive management in Madagascar.

Family planning work expands beyond Velondriake

In December, Blue Ventures began expanding its sexual and reproductive health programme (SRHP) to five further villages bordering the Velondriake community-managed Marine Protected Area: Andalambezo, Malandy, Ankotapiky, Antsepoke and Bevohitse.

Blue Ventures has been working in these villages for the past 2 years to replicate the success of Velondriake's octopus no take zones. The SRHP

team visited these villages to carry out an introductory awareness-raising campaign, introducing the initiative to these communities. In total 154 women and 120 men attended the sessions in the new villages.

Above: Maggie and Vivienne conduct a peer education session on family planning

The integration of sexual health and family planning projects within conservation work is becoming widely acknowledged as an important factor in successful conservation projects worldwide. Access to family planning allows women from impoverished communities to space their births and limit family size, which in turn may help to manage the pressure on the marine and coastal resources that they rely on for subsistence and income. Community education is a key aspect of Blue Ventures' work in this field. Further educational visits are planned throughout 2010, as well as educational sessions in local schools to increase community knowledge and awareness of the links between reproductive health and the environment throughout the southwest region.health project. Further education visits are planned for early 2010, as well as education sessions in local schools to increase community knowledge and awareness of the benefits of family planning

Above: Project Manager Fanjavola provides a young woman with contraception after the birth of her 4th child

Third seasonal closure of mangrove reserves in Velondriake

Mangroves are hugely important to the health of the marine ecosystem, not only in protecting and stabilising the coast but also in supporting a large number of juvenile fish species before they migrate onto the coral reefs. Mangroves also provide an important habitat for shrimps and crabs - species that are heavily fished in some areas of Velondriake.

The south of Velondriake has one of the largest mangrove stands in southern Madagascar, in the Baie des Assassins. Within Velondriake there is now a permanent mangrove reserve in place, directly surrounding the village of Vatoavo, which aims to protect the mangroves as a critical habitat, as well as those species which are dependent upon them. In addition, a number of temporary closures of the mangrove shrimp and crab fisheries have been introduced in order to maintain the sustainability of crustacean fisheries locally. Following the success of previous temporary closures of mangrove stands in 2007 and 2008, Lalao Aigrette (Blue Ventures' Natural Resource Manager) and Tolotra (a Velondriake scholar) travelled to Ankindranoke in early December 2009 to support the third consecutive annual closure.

Above and Below: Community members place wooden signs to mark the location of the mangrove reserve

An area of mangrove forest neighbouring Ankindranoke, known as 'Mahavatse', was closed on the 8 December 2009. The President of Ankindranoke and several representatives from the Velondriake Association were present to witness the occasion and more than 50 villagers showed their support. The corners of the reserve area were marked with wooden signs indicating the presence of the reserve, explaining the rules and dates of the closure. The reserve will be in place for three months over the shrimp breeding season and will be reopened in March 2010.

BV celebrates its 50th Expedition in Madagascar

In celebration of Blue Ventures' 50th volunteer expedition to Andavadoaka, Madagascar, a celebratory open day was held on 21st November 2009. After six years in Madagascar, and 12 months of recent political instability that have affected the work of many NGOs throughout the country, Blue Ventures was proud to be able to celebrate such an important achievement.

The village of Andavadoaka was invited to the BV research centre to participate in educational games, competitions, and to see presentations and posters of the projects supported by BV. Visitors also experienced on-land demonstrations of the underwater survey methods used by staff, volunteers and Velondriake community scholars to monitor the coral reefs within the Velondriake Marine Protected Area (www.livewiththesea.org). Representations of fish and coral surveys were constructed, and Velondriake scholars and volunteers were on hand to explain the conservation relevance of Blue Ventures' marine research to community members.

Above: An Andavadoaka child experiences breathing underwater in a bidon of water with SCUBA gear on Blue Ventures' open day

A pirogue (local dugout canoe) race was held from Andavadoaka beach to Nosy Fasy – a small sand cay - and back, a distance of approximately 6 km. A team from Ampasilava were the clear winner, and Flora, a volunteer onboard the victorious pirogue, was suitably impressed with the skills of her Malagasy helmsmen. In the early evening, a quiz was organised on conservation within the region, before the prize giving for the pirogue race.

Blue Ventures looks forward to continuing its work with the communities of Madagascar and expanding its support for community-led marine conservation programs.

Octopus scoping mission to Rodrigues

In November Blue Ventures' fisheries scientist, Daniel Raberinary was invited to visit the Mauritian island of Rodrigues as part of a scoping visit by ReCoMaP (Programme for the Sustainable Management of the Coastal Zones of the Countries of the Indian Ocean) to investigate opportunities for management of the local octopus fishery.

Blue Ventures first developed the use of octopus no-take zones (NTZs) as a fisheries management tool to demonstrate the benefit of marine reserves to communities in 2004, and today the technique has been replicated by communities and NGOs throughout southwest Madagascar. Daniel was part of the team that first developed the local management strategy with the village of Andavadoaka, and subsequently with the Velondriake community-managed MPA in southwest Madagascar.

Above: Octopus fishers in Rodrigues

Daniel accompanied Professor Warwick Sauer from Rhodes University, South Africa, to Rodrigues, to assess the octopus fishery in Rodrigues and to put forward management suggestions. This trip followed a visit in January 2009, when fishermen from Rodrigues traveled to Velondriake, to directly observe community-based octopus fishery management.

Four marine reserves are in place in the northern lagoon in Rodrigues, having been gazetted by the Rodrigues Regional Assembly. The marine reserves are protected from all fishing activities and it is estimated that between 17% and 52% of each reserve represents suitable octopus habitat.

The octopus fishery exploits recruits within the lagoon. The annual catch is dropping steadily, and is now less than half of 1994 levels, even with an apparent reduction in the number of active fishers. The scoping visit concluded that the available data indicated that the octopus fishery is in a state of crisis, and immediate steps should be taken to halt the decline and rebuild stocks.

Above: Fishermen in Rodrigues with their octopus catch

Consequently the following recommendations were made for immediate management action:

- A national closed season of up to 3 months should be introduced in 2011, based on the timing of the recruitment.
- A minimum size limit of 350g should be enforced, particularly at the level of the purchasers.
- A recreational/subsistence bag limit should be set, recommended

at 2 octopuses per person per day.

- Alternative livelihood projects must be developed as a viable alternative to octopus fishing.

In the long-term it is hoped that octopus biomass and recruitment will be maintained through the complete protection of at least 30% of octopus habitat within the Rodrigues lagoon, the maintenance of a co-management approach with fishing communities, and the development of viable alternative livelihood strategies.

Summer season octopus no-take zone closures

November and December 2009 marked the closures of octopus no-take zones (NTZs) in Velondriake, Manombo and the Ambatomilo regions.

The closures were supervised by the Blue Ventures' Malagasy staff, as well as Velondriake scholars and supervisors, and were attended by approximately 15,000 people. The octopus NTZ closures will last for three months, and aim to increase octopus populations, demonstrate the pressures placed on marine resources by the local population, and assist in discussions and debates that focus on alleviating overfishing. The reserves will be vigilantly monitored by local management committees to ensure they are not fished or raided by freeriders on the opening day.

News from Malaysia

Mukut Village School Visits

Kampong Mukut is a village of 200 residents on the south coast of Tioman island. Very few tourists reach this part of the island and as a result, villagers have not moved away from their traditional sources of income, such as fishing. Blue Ventures staff and volunteers visit on a regular basis to work with the small village school. The focus has been on raising awareness of environmental issues, as well as teaching English.

Above: The Malaysian village of Kampong Mukut

Sessions have included a beach clean-up, followed by lessons on which items could be recycled and how the children and their families can reduce their waste production. Fifteen bags of rubbish were collected and sorted into plastics, glass and paper. Volunteers also ran a session full of games that taught children about basic ecological principles, such as food webs, demonstrating the links between different organisms in various habitats. Mukut teachers were also keen for students to practice their English language skills and volunteers took this chance to teach children about sustainable fishing practices through reading English books and playing more games.

We hope that in 2010, this relationship will continue and grow by extending trips to the village and introducing workshops with the adult community.

Above: Local children in Kampong Mukut undertake a beach clean with the help of Blue Ventures' staff and volunteers

Below: The children are taught about recycling and waste reduction

Fifteen minutes of fame!

Numbers of diving tourists in Tioman reach tens of thousands every year, and not all of them are environmentally aware. Unfortunately, many do not realise that the reef is sensitive and can be badly damaged by physical breakages and removal of important organisms. In addition, divers do not always know that they can help protect these beautiful ecosystems.

To help raise awareness, Blue Ventures volunteers have been working on a series of responsible diver videos. These videos were designed, directed and produced by volunteers and aim to encourage responsible diving practices. The videos include tips on how to conduct a crown of thorns (COT) clean-up, how to be a responsible snorkeler, how to be a responsible diver, how to achieve perfect diving buoyancy and to respect all reef creatures. The videos are currently on YouTube (http://www.youtube.com/user/BVMalaysia) and will be made into a CD that will be distributed to dive centres around Malaysia for their customers to view before each dive.

Conferences and workshops

Zanzibar aquaculture workshop

In November 2009, Blue Ventures was invited to participate in the regional workshop 'Mariculture in the WIO region: Challenges & Prospects'. The workshop, organised by the International Foundation for Science (IFS), the Western Indian Ocean Marine Science Association (WIOMSA) and the Beijer Institute, was held near Stone Town, Zanzibar.

The overall objectives of the workshop were to discuss sustainability issues, research priorities for aquaculture development within the WIO region and to strengthen links between researchers in Southern and Eastern Africa working in integrated coastal zone management in the region.

The workshop consisted of a series of key presentations from invited specialists and WIO participants. Blue Ventures' community-based sea cucumber farming project in southwest Madagascar was presented by Mariculture Development Coordinator, Georgina Robinson, as part of the theme, "Facilitation mechanisms and success stories". Presentations from the workshop can be viewed at http://www.beijer.kva.se/WIOMSAIFSWorkshop/index.html

It is hoped that the output from the workshop will enable managers involved in coastal development to make qualified recommendations and decisions about aquaculture in the region.

Above: Collection of sea cucumber juveniles

Below: Members of the community help construct sea cucumber pens

Above: Harvesting of sea cucumbers

Reef Conservation UK

On 5 December 2009, Blue Ventures attended the 12th Annual RCUK meeting, presenting the progress of our innovative sea cucumber mariculture programme, currently underway in Madagascar.

Sean Clement, standing in for Georgina Robinson, outlined the current achievements of the project and the plans for expansion of the project over the coming year. The presentation raised a lively discussion from the audience and allowed us to further outline our commitments to the development of alternative livelihoods in the Velondriake region.

Reef Conservation UK

2009 Publications

Mohan, V (2009). Velondriake Region Sexual and Reproductive Health Service Project: 2 Year Report. Blue Ventures Conservation Report.

For all enquiries and questions: enquiries@blueventures.org