



Blue Ventures Conservation Andavadoaka, Madagascar

*conservation
education
research*

2008 is the International Year of the Reef:
Blue Ventures joins forces with Coral Cay Conservation
and the Project Aware Foundation to launch UK cam-
paign to promote coral reef protection.

www.blueventures.org

Research Update, October to December 2007

New Family Planning Clinic, p.2
Over one hundred patients seen in
the first few months.



**Update on sea cucumber aqua-
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Success leads to plans for expansion.



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The latest news from Blue Ventures sis-
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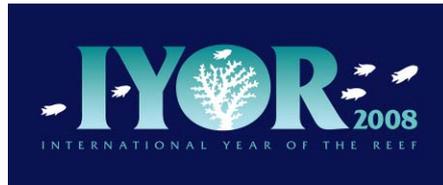
2008 has been designated the International Year of the Reef (IYOR)

2008 is the International Year of the Reef (IYOR) and Blue Ventures is partnering with other NGO's to raise public awareness and knowledge about the state of the world's coral reefs and the need to protect them.

Coral Cay Conservation, Blue Ventures and Project AWARE Foundation will work with like-minded businesses, government leaders, non-profits and individuals to push for policies and programmes that will ensure the world's reefs remain healthy and productive for generations to come.

IYOR is a worldwide campaign to raise awareness about the importance of coral reefs and the threats they face. It has been 10 years since governments and conservation organizations around the world declared the first International Year of the Reef in 1997. During that first campaign, hundreds of groundbreaking studies were conducted to determine the status of coral reefs and numerous international policies were

enacted to protect these vital re-
sources.



"While much was accomplished in 1997, the threats to reefs around the world have grown exponentially over the past ten years," said Richard Nimmo, Managing Director of Blue Ventures. "Climate change, pollution and destructive fishing practices are threatening to irrevocably destroy these resources that are essential to life on earth. We must act now before it's too late."

Coral reefs have been called the "rainforests of the sea" because of the vast diversity of life they support. Reefs cover less than one percent of the Earth's surface, yet they are

home to 25 percent of all marine fish species.

But more than half of the world's coral reefs are at risk from human activities. At the present rate of destruction, scientists predict that 70 percent of the world's reefs will be destroyed by the year 2050.

Throughout 2008 Blue Ventures, Coral Cay Conservation and the Project Aware Foundation will organise public events and activities to promote reef conservation and motivate people to take action to protect them. The groups also plan to publish a bi-monthly newsletter that will include updates on the latest reef news and science, calls for action to promote reef conservation and announcements of conservation events in London and around the world. Watch this space for more news about IYOR and how Blue Ventures is working to protect coral reefs.

Blue Ventures family planning clinic report

In just a few short months, the newly established family planning clinic has made fantastic progress, and is already making a valuable contribution to the community of Andavadoaka.

Since the clinic first opened in August 2007, 120 patients (almost exclusively women) were seen, and 20 "couple years" of contraception was dispensed (i.e. the amount of contraception dispensed, when added together, was sufficient to provide contraception for 20 years).

It is clear that as well as enabling couples to plan their families, the new availability of contraception is letting village women to take control of their fertility for the first time. Empowering the women of Andavadoaka through contraception distribution and sexual education is likely to have a huge impact on the community, improving women's health and population management.

The average number of children in a Malagasy family was 5.4 in 2005, and at the current rate the Madagascar's population is expected to double within 20 years, with potentially huge social, economic and environmental consequences. In Andavadoaka, this is likely to happen at an even faster rate, as half of the village is under the age of 15. Incidents of teenage pregnancy are also extremely common in Andavadoaka.

The rate of sexually transmitted diseases is also on the rise in southwest Madagascar. Syphilis and gonorrhoea have reached epidemic proportions in some areas, and usually go untreated. HIV is also making its way from mainland Africa, and Tulear now has a significant number of registered HIV positive patients. With the imminent arrival of large scale mining projects north of Tulear, and the large influx of migrant workers that will follow, the situation is likely to get much worse, very quickly.

While the new Blue Ventures Family Planning Clinic has proven hugely successful so far, more needs to be done to raise awareness in the village

of the availability, effectiveness and safety of contraception. Blue Ventures' new medical officer, Becky Hill, plans to expand outreach efforts to the village to further encourage the use of contraception and safe sex practices.

Hill succeeds Craig Noler who is leaving after serving for nine months as the Blue Ventures medical officer in Andavadoaka. Craig's enthusiasm and dedication to the clinic will be greatly missed.



BV volunteers run a crèche to amuse children while their mother's attend the clinic

The clinic will also get a boost through an exciting new programme that will bring UK medical students to work in Andavadoaka. Over the next 6 to 12 months, several groups of medical students are expected to come to Andavadoaka through a new medical student elective programme. They will help with the development and delivery of family planning care and set up satellite clinics north and south of Andavadoaka to allow more communities to benefit from the health services.

Blue Ventures has fully funded the creation and operation of the clinic, keeping costs relatively low – only about £1000 per year – thanks to the logistical support and infrastructure Blue Ventures has been able to establish over the last five years of working in the region. To create additional satellite clinics across the region, however, requires new infrastructure and the hiring of another medic, adding £2000 to £3000 a year to the budget.

The Population and Sustainability Network (www.populationandsustainability.org) has generously donated £1000 to cover the additional costs of expand-

ing family planning services for the first year. We are currently looking to raise additional funding for the long-term survival of the project. We would be delighted to hear from anyone who has ideas for raising money or who would like to make a donation.

Expansion of sea cucumber mariculture

Sea cucumbers are an accessible resource and a valuable commodity for coastal communities around the world. Dried sea cucumbers are exported to Asia where they are highly valued for their medicinal and aphrodisiacal qualities.

The techniques used to collect and process sea cucumbers into the final commercial product, called *bêche-de-mer*, are straight forward, low cost, low-tech and result in a high value product with a long shelf life.

In SW Madagascar, over-exploitation of sea cucumber stocks has led to a decrease in product quality and size, the collection of less valuable species, declining exports and the use of illegal collection methods such as SCUBA diving which is endangering the lives of local fishers.

With 71% of the local Vezo population relying on fishing as their primary source of income, there is an urgent need to develop alternative livelihoods to relieve pressure on natural resources and provide sustainable incomes.

In March 2007, Blue Ventures began a collaborative project to pilot holothurian (sea cucumber) mariculture in association with Madagascar's principle marine research institute (IHSM); a sea cucumber hatchery called Aqualab; the fisheries export company Copefrito, and the Women's Association of Andavadoaka.

The pilot project is based in Antseragnasoa near Andavadoaka where an enclosure measuring 10m x 6m was built by the Woman's Association and stocked with 200 hatchery-reared *Holothuria scabra* juveniles from Aqualab. Monitoring of survivorship and growth rates is carried out on a

monthly basis by Blue Ventures volunteers, with the Women's Association being responsible for the general welfare, maintenance and guarding of the pens.



BV volunteers monitoring sea cucumber growth under the full moon

In October, a second pen (10m x 10m) was built to hold larger individuals. Figure 1 shows the growth rates for the juveniles in both enclosures between 15th March and 23rd December 2007.

Initially growth rates were poor, but from September onwards they rapidly gained weight and the largest individual now weighs a whopping 432g. The average weight in the 10m x 6m enclosure is 93g with the larger individuals in the 10m x 10m enclosure averaging 222g.

The success of the trials has attracted the interest of the other villages and in January 2008 a Project Manager was hired to expand holothurian farming across the region. Nine villages have been identified with suitable habitat to grow *Holothuria scabra*, namely Bevato, Belavenoke and Ambolimoke in the north and Lamboara, Tampolove, Agnolignoly, Vatoava, Ankidranoke and Ampasimara in the south.

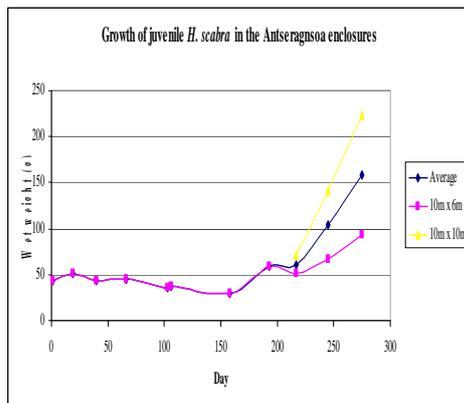


Figure 1: Growth of *H. scabra* in the mariculture field trials at Antseragnsoa between 15/3/07 and 23/12/07.

Sea cucumber projects will be established across the Velondriake Protect Area, a massive 800-square kilometer network of community-run reserves that is being developed by Blue Ventures and surrounding villagers. Sea cucumbers offer villagers sustainable incomes and an alternative to destructive fishing practices.

Members of the Velondriake Association (VA), the community management board that oversees the Velondriake project, discussed the sea cucumber farms in detail during their last meeting held in Andavadoaka on 15th January 2008. Blue Ventures recently received funding from the McArthur Foundation to build capacity of the VA to manage the local area and introduce alternative livelihoods in the region.

Members of the Association welcomed the sea cucumber initiative and also expressed a desire to use some pens to grow locally collected juveniles. Two new pens have been built in Belavenoke and Ambolimoke which will be used to conduct a comparative study of the growth rate of hatchery reared *H. scabra* from Aqualab vs. the growth rate of locally collected juveniles.

Over the coming months, BV will be working closely with the Velondriake Association and our commercial partners Aqualab and Copefrito to further define the role of all partners and to develop a socio-economic model for the sea cucumber farms. Copefrito has agreed to extend credit to families to purchase the juveniles from Aqualab and has pledged to buy the mature holothurians at the current market price for export to international markets.

In order to maximise returns for the communities, the sea cucumbers will only be harvested once they reach 20cm which will produce the top-grade bêche-de-mer. The minimum size limit also corresponds to the size at which *Holothuria scabra* is sexually mature and so depending on the time of year some of the stock will have a chance to reproduce before they are harvested. In this way, the project will not only decrease fishing pressure on wild populations but will also

act as a mechanism for stock enhancement.

Rare Sawsharks monitored in Shark and Turtle Programme

Sawsharks are poorly known by science, with only around 6 species described globally. They belong to the order Pristiophoridae and form the only family, the Pristiophoriformes, in this order.

Sawsharks are distinctive due to their flat heads and long, flat, saw-like snouts lined with rows of saw-teeth, along with a pair of long barbels radiating from their snout. All members of the family are small sharks (maximum total length 150cm) and are found on the continental and insular shelves and upper slopes of the northwest and south-east Atlantic, west Indian and west Pacific Oceans.

Between April and August 2007, eight sawsharks were recorded as part of Blue Ventures' shark fisheries research, a project that is recording the shark catch in twelve villages in the Andavadoaka region. Four were recorded in March, two in April and two in August 2007 from the villages of Andavadoaka and Nosy Hao.

All individuals were caught using specialised shark fishing nets in the deeper waters 8km west of Andavadoaka.

All were believed to be female and ranged between 30 and 110cm in length.

Photographs of two of the individuals caught in April 2007 have allowed positive identifications of the species. The sawsharks have been identified as *Pliotrema warreni*, the only sawshark to have 6 pairs of gill slits (all the rest have five). *P. warreni* is endemic to southern Africa with a relatively restricted geographic distribution. It is known to occur in the Western Indian Ocean, off Madagascar and from southern Mozambique to Cape Agulhas, South Africa, with a depth range of approximately 37m to 500 m.



Sawsharks caught and monitored under BV's Shark and Turtle Programme

P. warreni is currently listed as Near Threatened on the IUCN Red List as it is not only extremely vulnerable to fisheries bycatch but is also a relatively unproductive species, with small litters and a large size at maturity. At present there is a considerable lack of data on *P. warreni* and other species of sawsharks and it is hoped that future fisheries work in Andavadoaka will be able to carry out more detailed analyses on individuals caught to contribute to information on population data.

Expansion to the finfish monitoring programme

Blue Ventures field staff Bic Manahira and Tristan Brown worked with women in the village of Andranombala this autumn to train them how to monitor marine species caught by local fishers. During their first trip to the village, Bic and Tristan distributed Collins fish identification books to the women and worksheets describing the techniques of fish monitoring. After several weeks of practicing on their own, the women met again with Bic and Tristan to begin actual monitoring.



Local women running the finfish monitoring programme

Later Bic and Tristan met with village Nahoda (elders), the vice president and women from the island. Bic discussed the purpose of fin fish monitoring and then a brief question and answer session was held.

Monitoring records the number and species of fish being caught by local fishers and provides insight into the health of marine habitats and sustainability of local fisheries.

The women are all very happy to partake in the project and keen to help in any way that they can. The women also said they would like to stop actively fishing for turtles as they could see from BV's shark and turtle monitoring work that they were catching less and less – a brilliant boost for BV and satisfying recognition of the results of the project.

This group of newly trained women will conduct finfish monitoring every other Saturday in return for a small daily wage from Blue Ventures.

Finfish monitoring has taken place for the past year in Andavadoaka, supplying valuable information on local fish species and marine health. The extension of the programme to Andranombala is part of BV's efforts to increase its survey activities and scientific research to all regions of the new Velondriake Network of Protected Areas which extends 40 kilometres along the coast.

Participatory mangrove mapping at Belavenoke

Governmental and non-governmental organizations have become increasingly aware of the value of mangrove forests in both stabilizing coastal ecosystems and providing a means of subsistence to local communities.

Blue Ventures this autumn collected baseline data in the mangroves of Belavenoke, SW Madagascar, in order to assess forest structure and determine the economic value of mangrove forests to local communities — which may ultimately provide incentives for community-based mangrove management.



Satellite imagery of the mangroves in the Belavenoke region.

Over a three week period in October/November, 2007, fieldwork was carried out by Caroline Seagle, an independent researcher from Canada, in the Mangroves of Belavenoke, a small village to the north of Andavadoaka.

With the assistance of Angelo, a Blue Ventures staff member and Vezo resident of Andavadoaka, and two Nahoda from Belavenoke, Caroline had three research focuses: 1) Community-based participative mapping, 2) Transect Line Plot Method using GPS markers and 3) Informal Discussions/Interviews.

Caroline found that the diversity of mangrove tree species were very important to local communities. Five species of trees were identified to have very different and specific uses by the local Vezo population. The interdependence of species and biodiversity conservation has become a recent priority in the development of marine protected areas.

Construction is the primary use for mangrove wood, and the species found to be most desirable in this regard include Tangandahy (*Rhizophora mucronata*) and Tangampoly (*Bruiguiera gymmnorhiza*) since these trees provide the hardest wood and longest poles. Tangambavy (*Ceriops tangal*) serves an important purpose in providing smaller pole wood for fences, though is not particularly valued.

The remaining two species appear to be valued significantly less, though Hafihafy (*Avicenna marina*) serves an important purpose due to its medicinal properties. The leaves of the trees are boiled and used as a treatment for malaria that, according to the Be-

lavenoke nahoda, continues to be a problem in the area. However, aside from this use, Hafihafy is rarely if ever used for construction or for fire-wood, despite its abundance (it is an extremely salt-tolerant species).

By generating baseline data on the structure and use of Belavenoke's mangroves, local coastal communities will have a standardized framework for comparing and monitoring their littoral forests. Such data may provide leverage in the on-going struggle to combine conservation with economic development; incentives for community-based development and protection may then be more fully realized by policy-makers.

One of the underlying and long-term goals of this research is to answer the following question: how can the conservation of the mangroves ultimately benefit the local villages that use them? In order for conservation projects to be successful, it is necessary to merge incentives for conserving the mangroves with the ultimate needs of the local people. It will thus be crucial to develop a dialogue with the community about how to manage the mangroves in a way that might generate an alternative means of income.

This research was greatly strengthened by learning more about indigenous environmental knowledge, particularly information relating to the economic value of mangrove goods and services, the spatial distribution of the mangroves, and the medicinal properties of particular species. In addition to finding better ways to integrate indigenous environmental knowledge into mangrove preservation, it will be crucial to address the needs of local communities in order for community-based management of mangroves to be successful.

Introduction of 'seagrassnet' methods to Andavadoaka

Seagrass beds, like mangrove forests, are critical to keeping coral reefs healthy by filtering nutrients, sediments and contaminants.



Sea grass is an important intermediary habitat between mangroves and reefs beds.

In October, a team from Seagrassnet came to Andavadoaka to help Blue Ventures in its seagrass surveys across the Velondriake region. BV scientists and volunteers were trained in species identification and surveying techniques by leading seagrass scientists, Dr Fred Short and Aaren Freeman.

Seagrassnet (www.seagrassnet.org) is a scientific global monitoring programme that investigates and documents the status of seagrass resources worldwide, and the pressures that threaten these ecologically and economically important habitats. BV field scientists established Seagrassnet survey sites at Antsaranasoa Bay and Nosy Fasy.

In addition to the two sites that have been established in conjunction with Seagrassnet the end of the year saw the Blue Ventures Team looking to survey and map seagrass sites around the Velondriake region giving a better view of where seagrass exists and how these habitats interact to maintain healthy reef ecosystems.

Other sites for surveying of seagrass have been identified at Turtle Beach, Nosy Hao, Andranombala, Nosy Ve and Nosy Mitata, and work continues to survey more areas within the Velondriake region, forming the baseline knowledge and understanding of seagrass habitats required for future monitoring and potential habitat management within the Velondriake MPA guidelines.

Conferences and Presentations

WIOMSA Conference, Durban

In late October the Western Indian Ocean Marine Science Association

(WIOMSA) held its Fifth Scientific Symposium, held in Durban, South Africa, with the theme 'Science, Policy and Management: pressures and responses in the Western Indian Ocean region. The main purpose of the Symposium was to bring together practitioners, academics, researchers and students, to share knowledge, experience and solutions to the challenges faced in the region's marine and coastal environment. Gildas Andriamalala, Blue Ventures' Socioeconomic Research Coordinator, travelled to the conference from Andavadoaka to present the latest results of the ongoing socioeconomic research being carried out in communities within the Velondriake protected area network.

Al Harris, BV's co-founder and Scientific Director presented research from his PhD on the effects of climate change on coral reefs; a key subject for debate in this International Year of the Reef.



Gildas Andriamalala on the beach in Durban.

RCUK, London

Members of the BV London team attended the 10th Anniversary conference of the RCUK at the Zoological Society of London this year. This is always a fascinating conference and an excellent way of touching base with reef conservation workers from all over the world. Al Harris presented a summary of the progress of the Velondriake MPA and stimulated the most questions of the whole conference, always the sign of an excellent presentation!

Durrell Conference, Antananarivo, Madagascar

BV Field Scientist Vola Ramahery attended a workshop organized by the Durrell Wildlife Conservation Trust on 13th-14th December 2007 at Espace Dera in Tana. It was organized within the scope of their project, "Monitoring

Matters" funded by USAID (the American Agency for International Development). The workshop gathered scientists as well as policy makers from different institutions, governmental and non-governmental agencies, working in the fields of conservation and sustainable use of natural resources. The discussions centered on the application of ecological surveys in nature conservation, particularly on participatory surveys, and the possibility of issuing a guideline for standardising the methods used in Madagascar.

During the first day, there were 10 presentations about different examples of ecological surveys done within different types of ecosystems around Madagascar. The presentations were in French and each one was followed by a question-answer session of about 10 minutes. Vola presented a piece on "Marine Ecological Surveys". On the second day, group discussions took place under the themes of:

1. Biodiversity and pressure surveys
2. Surveying perennial processes including management transfer to local communities
3. Accessibility, sharing, reliability, comparability, use and exploitation of the data.

The results and decisions made during the workshop will help in the elaboration of a guide for ecological surveys, as well as in coordinating the field methods and data exploitation of different institutions in Madagascar.

ject in Morondava, 250km north of Andavadoaka on the west coast of Madagascar. The Adventure Company contributes £2 (an equivalent of an offset of 170kg of carbon dioxide) for every client that travels with them on their Worldwide and Family programmes.

This money is being used to develop a new project centre with new workshop and staff. The project is being run in association with Association pour le Développement de l'Energie Solaire (ADES).

Stove Demonstrations Continue

BVCO is continuing to demonstrate the use of energy efficient stoves in Andavadoaka, raising the profile of the stove programme and increasing the awareness of inefficient cooking practices and fuel use.

Cooking with solar energy is a big change from traditional three-stone fires and so it is important to show how the food is cooked and still tastes good.



BVCO team train households to construct parabolic stoves

Because solar stoves can not be used 100% of the time due to weather conditions, the Yoyo stove has been introduced to supplement solar cook-

ing. Events to raise awareness are also used to recruit households into the programme.

Under the watch of new site management stoves are being distributed to all households in Andavadoaka that ask for one. They are taught to use the stoves and are surveyed for monitoring purposes.

Carbon Management Plan

BVCO continues to work with businesses and individuals to reduce their carbon footprint. BVCO consultants calculate the carbon footprint of the individual or business and develop easy measures to help reduce it.

BVCO helps not only to reduce the environmental footprint of the business or individual but also helps to reduce energy costs. Contact Ellie on ellie@blueventures.org to work out your carbon footprint and get started on a Carbon Management Plan.



ADES staff work in Andavadoaka to demonstrate the stoves

BV Carbon Offset Launches New Project in Morondava with Adventure Company

The Adventure Company - www.adventurecompany.co.uk - has shown great support of BVCO's work and is now funding a new pro-

www.blueventures.org



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