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BLUE VENTURES CONSERVATION

Protection of the Barren Isles archipelago

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Protection of the Barren Isles archipelago

Blue Ventures recently completed a landmark study to assess the feasibility of establishing a marine protected area (MPA) around the Barren Isles archipelago, a remote network of coral reefs and islands in the Mozambique Channel, situated between 40 km and 100 km off the west coast of Madagascar.

Portuguese sailors first noted the Barren Isles and their surrounding reefs – an extensive hazard to navigation - on their charts at the beginning of the sixteenth century. Today, when first arriving on these seemingly untouched isles, one can be tempted to think that little has changed since then. Yet Blue Venture's study, carried out in partnership with WWF-Madagascar with funding from the Geneva Museum (Réseau interdisciplinaire pour une gestion durable de la biodiversité marine) (Interdisciplinary Network for the Sustainable Management of Marine Biodiversity), sheds light on a long history of human exploitation, and an ecosystem that is increasingly under threat despite its isolation.

The research entailed ecological surveying of the isles and their surrounding coral reefs to establish the biodiversity conservation value of the archipelago, the condition of the habitats and populations of key species, and threats the region is facing. Community surveys were also carried out to ascertain the socioeconomic importance of the Barren Isles' marine resources to local resident and migrant fishing communities.

This information was compiled in order to assess the feasibility of the creation of a future MPA, gauging its potential impact on the local communities, and laying out details of a management plan for conservation in the area. Blue Ventures also performed a threats-based assessment of biodiversity conservation and human development challenges in order to develop targeted conservation and development actions that will address the underlying causes of biodiversity loss in this important marine ecosystem.

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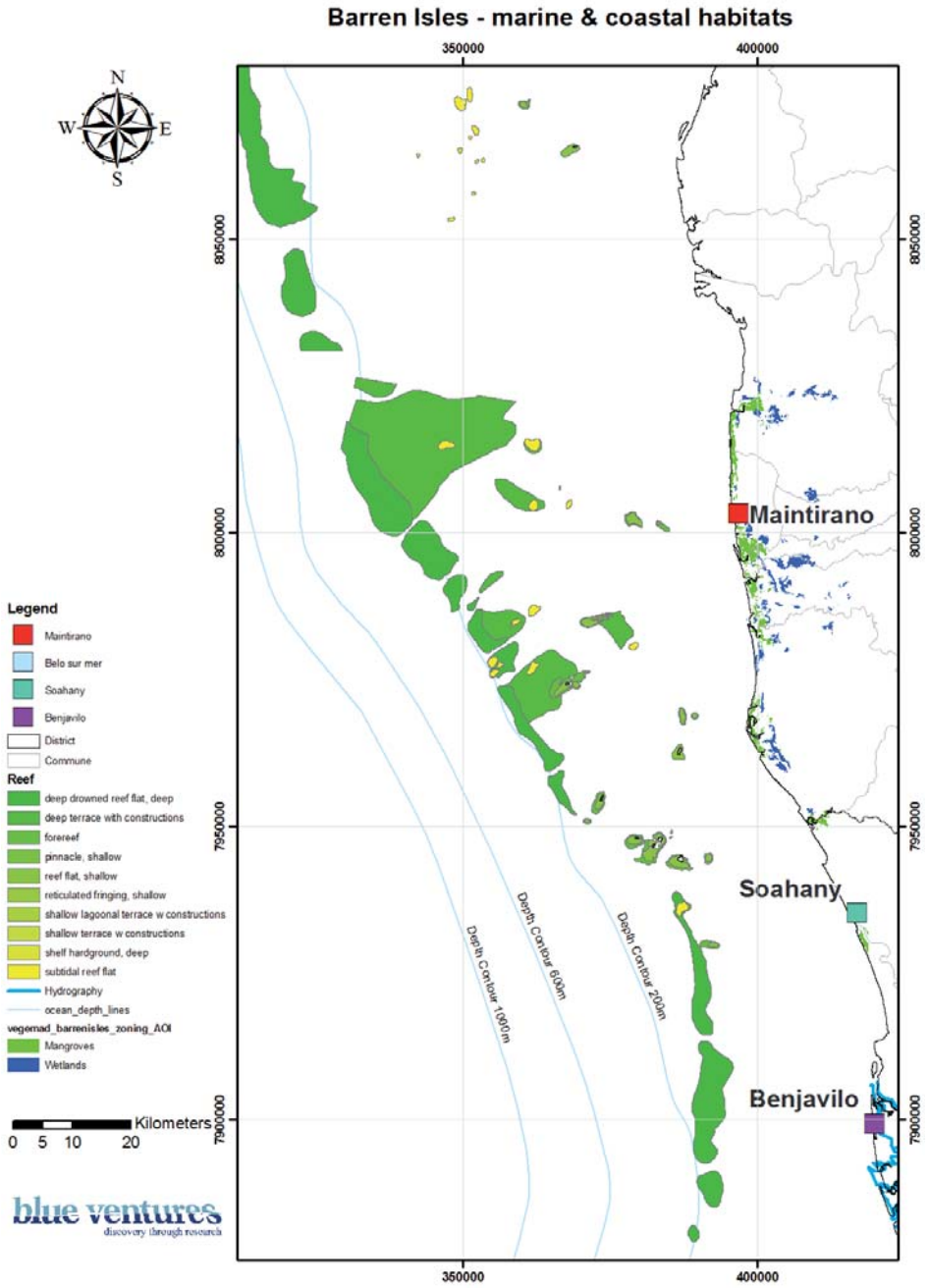


Figure 1: The Barren Isles archipelago and neighbouring coastal habitats

Biodiversity

The Barren Isles marine ecosystem consists of an enormous diversity of habitats, including deep waters off the continental shelf, offshore barrier reefs, various forms of shallow lagoonal reefs, extensive mangrove forests, estuarine marshes, wetlands, and coastal dunes adjacent to dense semi-humid tropical forest. These habitats cover a considerable area – the extensive coral reef system around the Barren Isles alone totals almost 900 km^2, the majority of which is deep reefs.

The Barren Isles harbour several species of exceptional conservation value, including:

• Five of the world's seven marine turtle species; all five are globally threatened with extinction, four of which nest within the Barren Isles;

• The endemic and endangered Madagascar heron (*Ardea humbloti*) and a regionally important nesting colony of the Roseate tern (*Sterna dougallii*);

• A number of mega-fauna, including sharks, humpback whales and several species of dolphin;

• The coelacanthe (*Latimeria chalumnae*), which is a critically endangered species.

The coral reef habitats of the Barren Isles are diverse and prolific, considered to be amongst the healthiest reefs in the country, and supporting an unusually high resident fish biomass. In large part due to their remoteness and offshore isolation, the Barren Isle reefs have not suffered many of the stresses that have degraded coral reefs elsewhere in Madagascar and the Indian Ocean. Vast areas of reef to the north-northwest of the isles remain scientifically unexplored and rarely frequented by traditional fishers. Recent aerial surveying showed these areas to be unusually rich in cetaceans, large pelagic fish and turtles (including leatherbacks). The relative absence of direct anthropogenic stresses has helped maintain the ecological resilience of these ecosystems, and the study's findings indicate that they have not shown the same vulnerability to climate-related coral bleaching as many other coral reefs in southern Madagascar.

Above: Migratory fisherman with his sea cucumber catch

Faced with the unabated decline of marine resources and deepening poverty in their home villages, an increasingly large number of Vezo migrants are now arriving in the Barren Isles. For these migrants and the local traditional fishers who are living a vulnerable and marginalised offshore existence, the sustained healthy waters of the Barren Isles ecosystem supports some of the few remaining productive fisheries, and forms the bedrock of their livelihoods.

You can read more about Vezo migrants in the region in Blue Ventures' migration report. See http://www.blueventures.org/images/downloads/research/Understanding_Migration_Mad_Final.smi.pdf

Socio-economic importance

In addition to harbouring an exceptional biodiversity, the Barren Isles are an economic and cultural lifeline to traditional fishers. The rich and diverse habitats within the isles' coastal and marine ecosystems support a productive artisanal pelagic fishery. The isles are sacred to the local Vezo Sakalava people, who regard them as a gift from their ancestors. The extensive reef systems are an important fishing ground for migratory Sara and Vezo fishers, of whom the latter travel the entire length of the west coast of Madagascar – up to 1500 km - to exploit the shark and sea cucumber fisheries in the Barren Isles. The study's findings estimate the total population living and fishing on the isles to be about 600 people; almost two-thirds of these are migrant fishers from the south.

Threats

The fishery resources and biodiversity of the Barren Isles are threatened by the open-access nature of the region's waters, and the uncontrolled exploitation of the Isles' natural resources. Traditional resource users, such as migrant fishers, have no system of governance with which to protect and manage the resources from modern-day commercial fishing threats. Traditional fishers increasingly find themselves in a situation where their resources are over-exploited by more powerful, politically influential outsiders. Madagascar's ongoing political crisis has aggravated this predicament. Teams of illegal sea cucumber divers, working off industrial trawlers or motorised barges, use scuba equipment to systematically and efficiently remove sea cucumbers from reefs, often diving adjacent to traditional fishers who are limited to free-diving. Not only does this illegal practice severely disrupt the reef ecosystem, it also threatens one of the primary sources of income for traditional fishers. At the time of the study there were at least five trawlers observed operating in the isles, each with two to three motor launches and diving teams.

Above: Industrial trawlers dwarf the artisinal fishing boats

In addition to the threats posed by scuba-diving fishers, net fishers working for prospectors based in the towns of Mahajunga and Hellville often visit the islands equipped with motorised boats and large 'barrage' nets that are set on the seabed to target guitarfish. Each net-fishing team typically sells around 50 kg of dried shark fins (mostly guitar fish) per week. Traditional fishers themselves have also heavily impacted populations of sharks and highly endangered sea turtles. More recently, guano collection on the isles has resulted in devastating impacts to the fragile island vegetation. Guanomad, the guano-harvesting company, plans to extract at least 500,000 tonnes from four of the isles to supply a lucrative market for fertiliser. Together, these activities pose a grave threat to the fragile island and coral reef ecosystems, degrading the natural resources on which the local people depend.

Conservation planning

The marine and coastal environment of the Barren Isles ecosystem is a tremendous natural asset that, if properly managed, could support sustainable fisheries in the long term, as well as bring conservation financing and new job opportunities to local people. The results of this study indicate that creation and formalisation of the Barren Isles MPA would empower local communities to combat the current threats to the region and become effective managers of their resources. Over recent years local stakeholders have already been working to protect the biodiversity of the Barren Isles, particularly marine turtles, and have already made promising steps towards this goal. Blue Ventures' recommendations for the creation and management of the Barren Isles MPA focus on developing community-based activities that will consolidate and build on the existing accomplishments of local actors, with a holistic approach replicating many of the successful community-based conservation strategies developed by Blue Ventures and partners in southern Madagascar.

Above: Migratory fisherman take a break for a cup of tea. The Barren Island ecosystem, if managed properly, could support these fishermen in the long-term

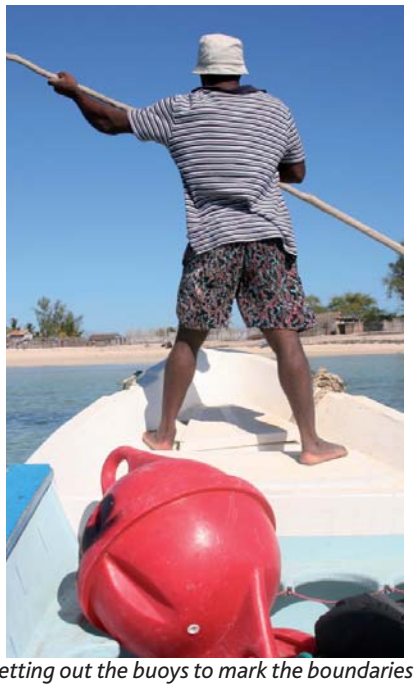
The cornerstone of a regional network of MPAs

At a regional level, the Barren Isles MPA will form the cornerstone of a network of marine reserves extending over the western coast of Madagascar, which presently comprises the large Velondriake and Kirindy Mite MPAs. Marine conservation networks play a fundamental role in protecting habitats at an ecologically meaningful scale, conserving both threatened marine biodiversity and the fishing grounds of traditional migratory fishers. It is hoped that a future network of reserves in western Madagascar, incorporating the Barren Isles, will make a crucial contribution to the long-term economic viability of indigenous Vezo and Sara communities through forming an important component of a regional marine protected area network that reflects their livelihood strategy of migration. Blue Ventures is currently working with WWF and the Museum of Geneva to raise the finances needed to make the Barren Isles MPA a reality.

News from Madagascar

New marine reserves closed to fishing

Permanent marine reserves form a key component of Madagascar's Velondriake MPA, the largest Locally Managed Marine Area (LMMA) in the Indian Ocean. Their role is to safeguard key coral reef habitats from all forms of fishing. Following extensive underwater surveying of the region's coral reefs, Velondriake's first permanent reserve was closed in 2009 near the central village of Andavadoaka. This reserve is widely perceived to have been a great success, with scientific and community-based monitoring taking place regularly within and around the reserve's boundaries. Following Andavadoaka's lead, other communities within Velondriake are working to zone new permanent reserves in their adjacent waters. The second permanent marine reserve was officially closed to fishing on May 28th , at a site northwest of the village of Bevato. The reef, known as 'Bevatohalaombe', is approximately 22 Ha and was first chosen by the fokonolona (community) of Bevato in late 2007. On June 23rd the third permanent reserve within Velondriake was closed in collaboration with the village of Lamboara. The 30 Ha site is adjacent to another proposed reserve selected by the village of Tampolove and scheduled for closure later this year.



Above: Setting out the buoys to mark the boundaries of the third permanent marine reserve closed in collaboration with the village of Lamboara

Kirindy-Mite MPA moves closer to gaining protected status

Blue Ventures' partnership with Madagascar's national parks (MNP) service has made encouraging progress towards gaining official protected status for the new Kirindy Mite MPA, an ambitious new conservation programme whose objective is to safeguard the vast reef and lagoonal ecosystems around the Belo-sur-Mer archipelago in western Madagascar. A four-day workshop held in Morondava and Belo-sur-Mer in mid-June confirmed the vision for the future park, which will comprise an IUCN Category V Protected Seascape with a nested Category II National Marine Park. This structure is designed to enable traditional resource users dependent on the region's reefs to continue fishing activities, while at the same time protecting core conservation areas from all forms of exploitation, and in doing so enhancing the sustainability of the region's fisheries.

Information derived from rigorous surveying of coral reefs, seagrass meadows and mangrove forests have been combined with the results of participatory zoning activities to arrive at a preliminary zoning plan that is both ecologically sound and socially acceptable.

The coral reefs around the southern islands of Nosy Andriamitaroke and Nosy Maiheloholo (figure 2) exhibit exceptionally high species diversity and coral cover. Four of these reefs have been chosen by local communities as strict no-take zones, or "core areas" to facilitate the recovery of fish populations which have been heavily affected by overharvesting. These core areas will be surrounded by sustainable use zones intended to allow local Vezo fishermen to carry on their traditional way of life in an ecologically

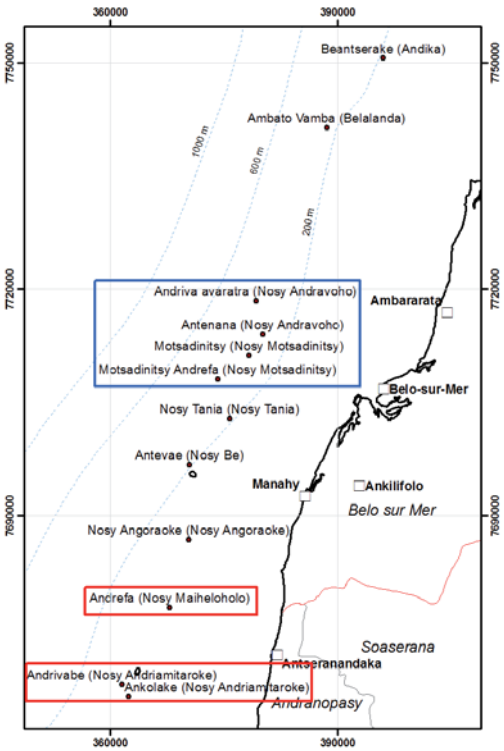


Figure 2: Belo-sur-Mer archipelago in West Madagascar- the site of the future Kirindy Mite MPA. Red boxes highlight reefs of exceptionally high species diversity and coral cover. Blue box highlight reefs heavily degraded by Cyclone Fanele, which are now designated sustainable use zones

friendly manner, while also promoting sustainable tourism. Local communities have expressed strong support for creation of this broader protected seascape, extending for approximately 100 km by 25 km, and encompassing the smaller Category II Marine Park, as a result of widespread concerns over the destructive effects of industrial shrimp-trawling operations, which both capture large amounts of by-catch and cause physical destruction to fragile seagrass habitats.

Additionally, coral reefs around the northern islands of Nosy Andravoho and Nosy Motsadinitsy (figure 2), which were heavily degraded by Cyclone Fanele in 2009, have been zoned as sustainable use zones, in order to effectively exclude destructive fishing practices, and facilitate their recovery to a state of high productivity.

Bleaching update

Coral reef surveys indicate that reefs in western and southern Madagascar have predominantly recovered from the bleaching event observed earlier in the year. Surveys conducted in March during the peak of the bleaching were repeated in May and June, following an extended period of reduced sea surface temperatures (figure 3), and show that bleaching indices have returned to pre-bleaching levels across the majority of sites (figure 4). Data for eight sites in the Andavadoaka and Belo-sur-Mer regions clearly show the reduction in bleaching index and coral recovery following the bleaching event. 2010 has seen the most severe bleaching event recorded in western and southern Madagascar since at least 2003, and the reported recovery is an encouraging indication of the regions' reefs.

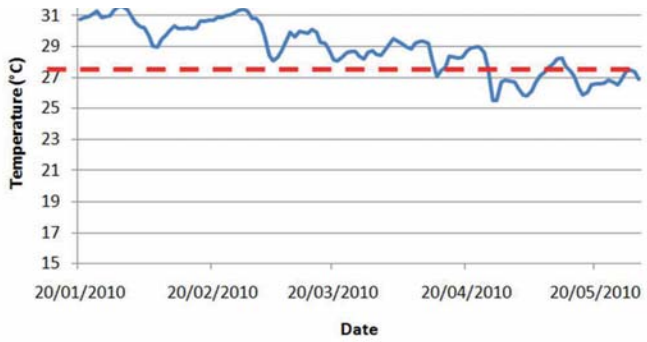


Figure 3: Mean daily sea temperature from Andavadoaka between January to May 2010 . Dotted line indicates McClanahan (2007) suggested bleaching threshold of 27.5°C

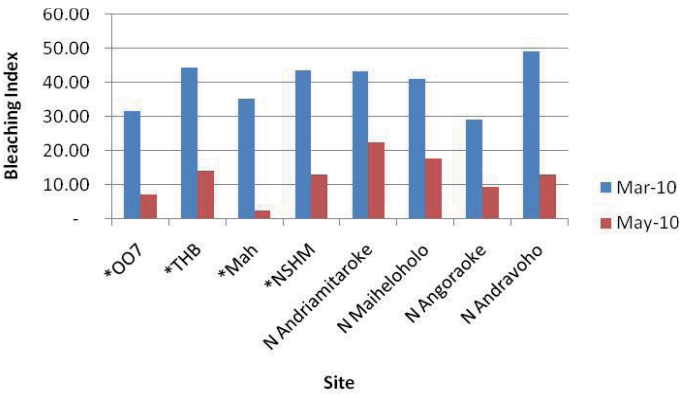


*Figure 4: Reduction in bleaching index for four sites around Andavadoaka (denoted by a *) and 4 sites around Belo-sur-Mer*

Community Based Distribution of Contraception within Velondriake

Blue Ventures' integrated Population, Health and Environment (PHE) programme has recently implemented a Community Based Distribution (CBD) programme for the Velondriake sexual and reproductive health (SRH) programme.

Blue Ventures' SRH programme has been running within the Velondriake region since 2007, providing services to communities within the MPA. The programme is now central to Blue Ventures' community-based conservation strategy, and serves to emphasize the inextricable link between reproductive health and resource use, providing practical immediate and lasting benefits to public health, food security and biodiversity conservation.

Blue Ventures currently operates weekly satellite clinics in four villages across Velondriake, however the Contraceptive Prevalence Rate (CPR - the proportion of couples using any form of contraception) has so far remained significantly lower in the more isolated villages within the MPA.

Above: Implanon (long-acting and reversible) contraceptive fitting day

Community based distribution of contraceptives has been shown to be a highly effective approach to removing barriers to SRH access in the developing world, improving access and uptake of family planning services in underserved populations. The approach works by training local community members - usually older, trusted women - to council villagers on family planning choices and to provide a limited number of family planning options.

Blue Ventures' partnership with Population Services International (PSI) has recently been developed to include CBD implementation, and 18 local women have been selected to work as CBD agents. PSI has extensive experience in implementation of CBD programmes within Madagascar and carried out a two-day training workshop in early June, during which two doctors came to Andavadoaka. The training covered reproductive anatomy, counselling techniques and modern contraceptive methods, with an emphasis on addressing patients' concerns about side effects and common misconceptions. Velondriake's CBD agents received training to dispense 'Pilplan' (combined contraceptive pill) and Kapoty (male condoms).

To ensure the CBD agents are appropriately supported in their new role, Blue Ventures' SRH team has trained two peer educators to supervise the CBD agents, acting as a link between the SRH team and the CBD agents, and providing support, education and clinical

Above: The newly elected Velondriake Association ©_BV_Shawn Peabody

referral services for any complex patients. The impacts of the CBD implementation on local contraceptive use will continue to be monitored as the programme progresses over coming months.

In July, an intrepid young woman from Exeter, SW England, completed an epic journey to raise money for Blue Ventures' PHE Programme . Tess Shellard trekked 1293 miles over 54 consecutive days from John o'Groats to Land's End - the entire length of the UK - to raise £10,000 for the programme.

Velondriake Association

In April and May the Velondriake Association, responsible for managing marine and coastal resources in the LMMA, held an election to renew its officers. Velondriake comprises 26 villages, and each village held an election to choose its representatives (between 1 and 6 depending on population). Turnout in the election was very high with approximately 40% of the adult population voting. More than 60% of the elected officers were new to the Velondriake Association. Getty Prize winner, SAMBA Roger, was re-elected as President of the Association.

Campaigning for sustainable fisheries

Blue Ventures' 'Campaign for Sustainable Fisheries Management' (see http://www.rareplanet.org/en/campaign/campaign-sustainable-fisheries-managementandavadoaka-coast) was launched in March in the Velondriake LMMA. The campaign, developed in partnership with social marketing organisation RARE, aims to bring about behaviour change to end unsustainable fishing practices that are damaging marine habitats, fisheries and livelihoods in southern Madagascar.

At the launch of the campaign, project manager Gildas Andriamalala and colleagues needed to emphasise the difference between the terms used for "beach seine fishing" (a destructive fishing activity) and "leaders", both served by the same word in Malagasy - "Mpitariky". Given the importance of differentiating between these two words for the success of the campaign, the word "Mpitarik'olo" which means "people pullers" was introduced to refer to beach seiners. The new terminology has been accepted and is new used widely.

To date, seventy representatives of Velondriake's management committees have received leadership training focussing on adaptive management, governance, conflict resolution and management in order to better support their work in communicating and enforcing Velondriake's local laws, or Dina.

Above: Campaign Manager Gildas giving leadership training

To support the campaign, a traditional pirogue painted with the campaign logo has travelled to all of Velondriake's 26 villages to distribute campaign posters, t-shirts and noticeboards. The pirogue carries the name of the campaign "Vezo aho", which translates literally as "I am Vezo". Thorughout Velondriake, the sails of at least 130 pirogues have been painted similarily to act as "moving billboards".

With the help of a talented local artist, three stencil designs were developed and painted onto pirogue sails promoting sustainable fishing practices in Velondriake. Given the large distances covered

Above: the sails with the Vezo aho logo and the message "Don't beach seine, spear fish"

by local fishermen both within and beyond Velondriake, it is hoped that this 'campaign armada' will prove an effective way to efficiently disseminate the slogans and messages of this campaign across the whole of Velondriake, as well as to Toliara in the south and Maintirano in the north - a total distance of over 1000 km.

Plover lovers visit Andavadoaka

Over recent years numerous visiting scientists have travelled to Blue Ventures research sites to carry out conservation research. Over recent months, ecologists Jorge Parra, Tamás Székely and Sama Zefaina from the University of Bath, in collaboration with the University of Toliara, have worked with Blue Ventures in Andavadoaka to study the conservation status of Malagasy plovers in the region.

Four species of plover, one of the most abundant groups of shorebirds, nest on the saltmarshes around Andavadoaka: Madagascar plover (*Charadrius thoracicus*), White-fronted plover (*C. marginatus*), Kittlitz's plover (*C. pecuarius*) and Three-banded plover (*C. tricollaris*). These species breed in very similar habitats, although their mating systems are remarkably different.

Shorebirds (sandpipers, plovers and allies) are a globally-distributed group with both migratory and resident species. These birds exhibit unique mating systems. In some species, males are polygynous (one male pairing with two or more females), whereas in others, the sex roles are reversed so that females compete for males, and the males take care of the eggs and the young; this diversity allows for interesting studies in behavioural ecology, evolution and conservation.

The researchers from Bath University's biodiversity lab investigated the mating system of Kittlitz's plover through two projects. Firstly, adults were ringed to identify their nest and pairbonds to identify their breeding system. Initial data suggests Kittlitz's plovers – unlike Madagascar plovers and White-fronted plovers – are polygamous, with only one parent caring for the chicks. Secondly, experiments were carried out to estimate mating opportunities, indicated by the proportion of males to females (adult sex ratio) in a population. An uneven sex ratio increases the ability for the secondary sex to find a new mate, influencing patterns in parental care and mating systems and determining monogamy or polygamy in the species. In a previous study, researchers found that the Kentish plover, a close relative of Kittlitz's plover, females found new mates more quickly than males. Following this same methodology for the Kittlitz's plover population in Andavadoaka region, the re-mating time of males and females was estimated. Initial analysis suggests the Kittlitz's plover females spend more time finding new mates than males, contrary to the Kentish plover trend. Results of this experiment are crucial to understanding how mating systems and parental care relate to population sex ratios.

Above: The Kittlitz plover, Charadrius pecuarius (photo: Jorge E. Parra)

The fieldwork also revealed some disturbing facts relative to the survival of the species. Firstly, many plover nests and chicks die due to predators (including humans); therefore, protection of these saltmarshes from human exploitation should be a high priority. Secondly, the avian fauna of the saltmarshes around Andavadoaka remain poorly understood; therefore, further research is needed to survey bird populations and to establish their ecology and behaviour. For instance, 83 species were encountered in these sites, five of which are globally endangered (the Long-tailed ground roller (*Uratelornis chimaera*), Subdesert mesite (*Monias benschi*), Humblot's heron (*Ardea humbloti*), Madagascar plover (*Charadrius thoracicus*), and Reunion harrier (*Circus maillardi*)). Further studies may reveal other endemic and endangered species.

News from Malaysia

Bleaching warning!

Warm waters, of 30-31˚C around Tioman Island, home to Blue Ventures' research base in Malaysia, recorded in April 2010, with coral bleaching observed on the reef surrounding Renggis Island. Increased levels of coral bleaching were observed to depths of up to 16m throughout May, with bleaching also observed in soft corals, anemones, fire coral and giant clams. All reefs surveyed showed over 45% bleaching of the coral population. Batu Malang, an offshore site with coral from 0-13 m was one of the worst affected sites, with over 77% bleaching of colonies and more than 88% of coral cover bleached (figure 5).

Temperatures seemed to be dropping in June, but bleached coral is still obviously present. Studies will continue to see the effects of this international bleaching event.

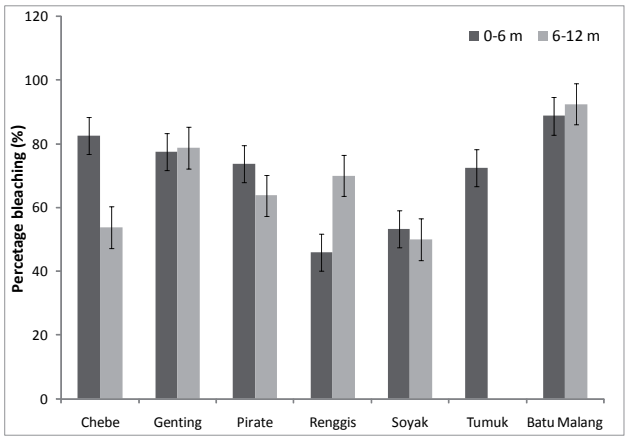


Figure 5. The average percentage of coral bleaching, above 6 m and below 6 m, at seven important coral reefs in Pulau Tioman Marine park.

New *Acanthaster Planci* research and monitoring

Researchers from the University of Hong Kong visited Blue Ventures in April to carry out a number of studies investigating the effectiveness of *Acanthaster Planci* Crown of Thorns Starfish (COTS) removal programmes.

COTS have reached plague levels on every reef around Tioman island and this could be due to the lack of their only predator, *Charonia tritonis* (Triton), which is heavily targeted by collectors for the marine curios trade. COTS reproduce rapidly, and are able to predate on hard coral at a rate that can destroy whole reefs

in a matter of months. Methods of controlling their population include physical removal and burial of individuals by divers. In Tioman, various dive centres and the Marine Parks Authority of Malaysia have been removing COTS on an annual (or even more often) basis for several years, however the effectiveness of these removal programmes is unclear as population numbers have remained approximately consistent, indicating that the removal programmes are not affecting the outbreaks.

Blue Ventures is collaborating with these studies by intensively removing COTS from three reefs around the island for the next 6 months. The abundance of COTS on these reefs will be compared to their abundance on other reefs where removal programmes have been sporadic or non-existent. In addition, detailed surveys of COTS presence, size and activity, as well as genetic sampling, will be conducted by Blue Ventures staff in partnership with the University of Hong Kong.

Above: A volunteer collecting Crown of Thorns for DNA sampling

It is hoped that this research will provide an indication of the effectiveness of COTS removal programmes and possible improvements to the management of COTS populations.

News from Belize

Summer loving hits the reef

The last few months have been very exciting for Blue Ventures in Belize; laying the foundation for a long-term monitoring programme looking in-depth at the health of fish and coral populations found in the Bacalar Chico Marine Reserve; diving unknown reefs and getting close to rare wildlife, such as the enigmatic west Indian Manatee.

Belize is well known to divers for marine giants appearing in the days following a full moon. In the spring and summer months, environmental conditions are perfect for many fish species to form large groups in order to reproduce. Blue Ventures divers have found these spawning aggregations by off an area known as Rocky Point, the only point where the Mesoamerican Barrier Reef touches the mainland. Solitary species such as permit and cubera snapper, as well as Atlantic spadefish, chub, horse eye jack, bar jack and yellow jack have been seen in huge shoals, with cubera snappers exceeding four feet in length. These fish aggregations form in order to maximise the chance of fertilisation of eggs. Survey teams have observed Whale Sharks following these spawning aggregations, feeding on the milt that they produce.

Spawning has not just been limited to fish species, with large amounts of coral spawn also being found in the water column. Broadcast spawning is a common occurrence among corals and many species are known to spawn once each year when environmental conditions are suitable. *Diploria labyrinthiformis* was found to have spawned in Belize on 9th June.

The turtle nesting season is also well underway, and the increase in the number of large individuals seen in the water has been testament to this, with numerous hawksbill and loggerhead turtles being seen on dives and turtle nests observed along some of the beaches of Bacalar Chico. A family group of Bottlenose dolphins has also been making regular appearances to visit dive teams, the 8-foot male regularly swimming towards divers, seemingly protecting his young calf and female, with the pod commonly seen inside the barrier reef so far this summer.

School's Out, conservation's In

From videos shown in Sarteneja's primary schools, to teaching environmental lessons in the village's high schools, Blue Ventures has continued to be actively involved in promoting education for conservation. The latest community project, working with the Sarteneja Alliance for Conservation and Development (SACD) and Wildtracks, has involved Blue Ventures staff and volunteers supporting a three day summer camp for school children, which included swimming lessons, treasure hunts and the opening of the Blue Ventures "Reef Education Centre".

Above: School children learning to paint marine animals and habitats at the sumnmer camp

The first two days of the camp were led by Blue Ventures, with the children, aged between 6 and 14, learning about and painting marine animals and habitats, and taking part in swimming lessons. The colourful boards created now form the walls of the "Reef Education Centre", a room in the Blue Ventures house where members of the community can come and learn more about Blue Ventures' work in Bacalar Chico. The final day of the summer camp culminated with a series of activities along the sea front where the children could demonstrate what they had learnt during the camp. Activities including canoeing, a poster competition and a scavenger hunt, with prizes handed out to the winning teams. With so many children attending the summer camp, learning and having so much fun, this is planned to be the first of many more exciting educational events scheduled for children in the seaside village of Sarteneja.

Conferences

Migrant fisher workshop, Mombasa

In May, Blue Ventures participated in a workshop on migrant fishers of the Indian Ocean. The workshop, held in Mombasa, Kenya, formed part of a regional study, supported by WIOMSA, being carried out in Mozambique, Tanzania, Kenya, the Comoros and Madagascar. Blue Ventures' senior conservation scientist Dr. Garth Cripps presented results on the migration of traditional fishers along the length of the west coast of Madagascar.

Globally, nearly one billion people move away from their homes each year in search of better chances in life, and fishers - traditionally highly mobile people - contribute to this trend. In addition to the Vezo fishers of South West Madagascar, who are traditionally semi-nomadic, small-scale fishers move along the East coast of Africa, crossing the borders of Mozambique, Tanzania and Kenya to exploit richer fishing grounds; fishers from the Comoros will even cross the Mozambique Channel to the coastline of Mozambique. The workshop aimed to bring researchers together to begin an analysis of socio-economic data on migration and to prepare a regional report on fisher migration. Initial findings show that much of the accepted thinking about fisher migrations needs debunking. Residents frequently accuse migrant fishers of causing the same problems that any other migrants in the world are surely said to be guilty of: they are blamed for taking away opportunities and resources from residents, and they cause social conflict by not respecting local customs and social norms. But analysis of the research showed a far subtler reality. Very often migrant fishers bring positive benefits, creating jobs and new opportunities for residents. In contrast to 'residents', they have very few formal rights even when they have been dependent on remote resources and isles for generations. This makes them particularly vulnerable to displacement by, for example, hotel developments and the creation of MPAs.

Mainstream thinking for the management of small-scale tropical fisheries is currently based very much on localised, geographically static management – for example, Beach Management Units in Kenya and Locally Managed Marine Areas in Madagascar. For the semi-nomadic fishers of southern Madagascar, migration is likely to become even more of a vital coping strategy than it already is. With this in mind, Blue Ventures is working to develop management approaches better suited to the reality of fisher migration and to exploit the opportunities that this presents. For example, by timing temporary reserve closures when migrant fishers are away, or using the 1200 km length of migration routes to spread social marketing messages.

Healthy parks- healthy people

In April Blue Ventures' Research Director Al Harris spoke at the opening plenary session of the international parks symposium 'Healthy Parks Healthy People'. The 6-day congress in Melbourne, Australia, was the first international meeting of its kind to focus on the links between conservation and human health. Blue Ventures' integrated Population, Health and Environment (PHE) programmes represent a valuable case study of the strong synergies between community-based conservation and public health efforts in the tropical developing world. Since 2006 Blue Ventures has been providing sexual and reproductive health services alongside its marine conservation work in remote coastal communities within the Velondriake Locally Managed Marine Area (LMMA) in southern Madagascar. This principle of consensual improvements in reproductive rights and a health-based approach to population choices and conservation, are at the heart of the Blue Ventures project.

CoReMo 3 workshop in Mauritius

In June, Blue Ventures marine scientist Charlie Gough attended a coral reef ecology workshop in the island of Mauritius. The aims of the workshop included the launch of CoReMo3 (a coral reef survey database), the development of a report on the status of reefs of the Western Indian Ocean region, and the production of a long-term sustainability plan for the coral reef monitoring network of the region. Delegates included representatives from the Comoros islands, Mauritius, Madagascar, Reunion, Rodrigues and the Seychelles.

Asia Pacific coral reef symposium

Also in June Blue Ventures scientists Katie Yewdall and Catherine-Jane Howarth, presented their recent studies of fish diversity at Tioman Island at the Second Asia Pacific Coral Reef Symposium (2nd APCRS), held in Phuket, Thailand. The 2nd APCRS provided a forum for scientists, educators, managers, environmentalists and other stakeholders in the Asia Pacific region to share their knowledge and experiences on all aspects of coral reef biology, ecology, management, and conservation strategies.

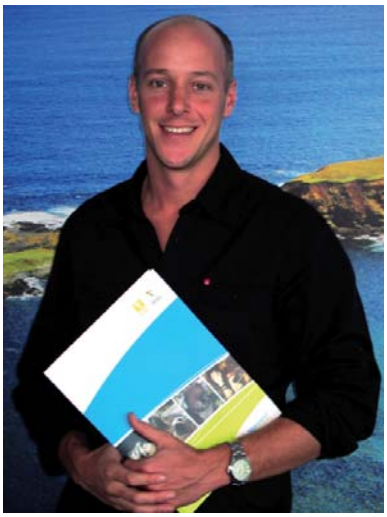
30th annual sea turtle symposium

In April, Blue Ventures' Research Coordinator Frances Humber attended the 2010 Sea Turtle Symposium in Goa, India. Fran presented results of Blue Ventures' long-term assessment of the status of southern Madagascar's artisanal marine turtle fishery South-East Asia mini symposium.

Other news

Blue Ventures conservationist becomes penguin ambassador

In April, Blue Ventures' Research Director Dr Alasdair Harris was announced as the Australian Penguin Foundation's latest Ambassador. The Penguin Foundation aims to provide a dedicated source of funding for penguin research, rehabilitation, protection and rescue projects to ensure the ongoing survival of the Little Penguin colony on Phillip Island, Victoria. As part of his role as Ambassador, Al is helping to raise funds and awareness to support the Foundation's mission. Other Ambassadors to the Penguin Foundation include Dr Hugh Wirth, President of the World Society for Protection of Animals, Australian Olympic champion Michael Klim OAM, Kylie Minogue, and Joan Rivers.



Above: Blue Ventures' Research Director, Dr Al Harris

Blue Ventures contributes to ARKive

Blue Ventures marine scientists have contributed a number of images of coral reef species to the ARKive project, a digital library of the world's biodiversity, accessible to all. More information about this important initiative can be found at www.arkive.org.

Above: Ctenella chagius, an extremely rare coral found only in the Chagos archipelago. central indian ocean. Images of this endemic monospecific genus are among many contributed by Blue Ventures to the Arkive project

A day in the life: Lalao Aigrette

So, what's it really like working for Blue Ventures? To give you an inside view about what our staff really do, this edition will focus on Lalao Aigrette, community outreach officer in Belo-sur-Mer in western Madagascar.

Lalao has been working for Blue Ventures since January 2008, initially as the natural resources monitoring manager, responsible for seagrass and mangrove surveying. Her duties also included coordinating community-based monitoring programmes within the Velondriake LMMA. In Velondriake, Lalao also managed the women's associations in Andavadoaka and Lamboara.

Lalao completed her degree in marine science from the Marine Sciences Institute (IH.SM) at the University of Toliara, and trained for a year with Madagascar's national parks service in marine protected area management. Prior to joining Blue Ventures, Lalao also worked for Cabinet de Conseil et Consulting de Madagascar (CCCM) as a socio-organiser responsible for the capacity building of farmers' and fishermens' associations in Eastern Madagascar .

"For the last five months, I have been in charge of the monitoring and surveying of mangroves and seagrass within the future Kirindy Mite MPA, as well as assisting in coral reef surveying, and coordinating the "Samba-Getty fellowship" program which supports the academic training of future conservationists in Madagascar.

I usually spend half my time in the office and half my time in the field . The purpose of mangrove and seagrass monitoring is to provide baseline data on habitat condition. For mangroves this includes many variables, including basal area, stem density, species composition, biomass, canopy height, percentage cover, tree diameter, soil pH, water salinity, soil composition, and water temperature – to name just a few! This baseline data, accompanied by periodic monitoring, can be used to assess changes in the extent and community structure of these important habitats.

Once we arrive in the village where we are doing the survey, the first step is to meet with the head of the village or community leader (normally the chef Fokontany or Mayor) to explain the objective of our mission. Then, these people organise the village meeting to introduce us and explain our mission to the rest of the local community. During the village meeting, we request one or two people to help us in the fieldwork for collecting data and guiding. These people are selected or delegated by the local community themselves. Before beginning fieldwork on the second day, we provide training of the methodology for the community surveyors. Generally, mangrove surveys take 2 or 3 days, depending on the size of the mangrove forest. The seagrass surveys usually take only one day. Surveys for both mangrove and seagrass are completed during the low spring tide.

Above: Blue Ventures' Lalao Aigrette in Reunion Island after presnting her work at a WIOMSA conference

Once we are back from the fieldwork with the data collected, I enter the data into a computer database and keep a hard copy in a copy book. Once data entry is completed, I analyse it for production of scientific reports, and for the community dissemination meetings. Due to low levels of formal education in the community, I try to present the results to communities as simply as possible, for example not using percentages, or averages, which are too confusing. For scientific reporting, I use more robust analysis.

So far, I have enjoyed all aspects of my job, even mangrove surveying, which is hard work! Laying the transect can take more than one hour if the mangrove forest is dense and muddy. We have to climb over the high roots of *Rhizophora*, which contain sharp shells (huitres). Also, the measurement of the mature trees and the physical parameters, the counting of saplings, seedlings, cut stumps and the benthos in the three plots must be done before the tide comes up or we will need to come back to the site again the day after. One plot can contain more than 200 mature trees if the forest is dense."

2010 Publications

Harris, A., Gibbs, R., Schleyer, J., Taylor, K., & Sheppard, C., (2010) Safeguarding temperature loggers on remote coral reefs – lessons learned from relocating loggers in the Chagos archipelago. REEF ENCOUNTER Newsletter of the Inter national Society for Reef Studies January 2010 No. 38

Keeping in touch

In addition to our quarterly newsletters, you can keep in touch with Blue Ventures' projects around the world on our website, blog, facebook (www.facebook.com/blueventures) and twitter (www.twitter.com/blueventures). Sign up at http://www.blueventures.org/newsroom.html