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1. Introduction

Mayumba National Park is the only Gabonese protected area specifically protecting a coastal-marine habitat. The park is situated on the coast, adjacent to the Gabon/Congo border, and covers an area of coastal sea of 15km by 60km, and an area of beach and dune of 1km by 60km. The park is contiguous with Conkouati-Douli National Park in Congo, forming a trans-frontier area of great importance to the conservation of many marine and coastal species. Community-use zones surrounding the park contain important natural resources (notably coastal and continental fisheries) of considerable local and national importance. USAID/CARPE provides technical assistance to the Gabonese Park Director, Solange Ngouessono through WCS Project Director, Dr R.J. Parnell. The program has provided materials, capacity building assistance, and technical expertise in all aspects of the installation of the park, its infrastructure and activities. The project has also been active in promoting initiatives to improve land-use planning and sustainable resource management in the community zones and villages outside the protected area.

This document reports on the major activities and accomplishments of the project during its three years of existence. It is supported by a suite of MOVs submitted previously, and accompanying the Year 3 Annual Report. Of particular relevance is the document 'Draft Land-use Planning Report for the Mayumba National Park and CBNRM Zones'. Given that CARPE has approved further funding for the project over the next 5 years, this report, while dealing with specific benchmarks and targets for the first 3 years, is written from the standpoint of a progress report for a longer-term ongoing project, in addition to being a final closing document for a completed phase of the project.

The principal objective of the project has been to contribute to the Landscape 3 Year target values for increasing land-use planning capacity in protected areas and community based natural

resource management zones outside of protected areas. In Mayumba, this translates to the convening the land-use planning process for the Mayumba National Park and community fishing zones (marine and freshwater) in the Mayumba area. Specific tasks in pursuit of these goals have included:

1. Baseline data collection: general geography, fauna and flora, human impact, and socio-economic information.
2. Mapping of above subject areas in local and Landscape GIS database.
3. Delimitation of Mayumba National Park (MNP).
4. Identification and assessment of principal threats to MNP.
5. Identification and mapping of community-use zones.
6. Sensitization activities in local villages.
7. Pursuit of an environmental education program in villages and schools.
8. Hiring and training of local persons to staff the project (ecoguards, driver, etc).
9. Acquisition of physical infrastructure for the project (office, workshop, etc.)
10. Purchase and use of necessary equipment (office, surveillance, education etc.
11. Monitoring of animal populations and threats to MNP.
12. Lobbying locally and nationally to reduce threats.
13. Evaluation and monitoring of natural resource-use by local people.
14. Working with local community groups and individuals in gaining consensus on resource management initiatives.
15. Promotion of alternative income generating schemes for local communities.
16. Participation in Landscape and National land-use planning forums (Government, NGO, Industry).

In almost all tasks and activities, the project has made significant progress towards the overall goals of the program. The project has a central headquarters established in Mayumba town (the political centre of the area and the only point with safe access to the ocean via the Banio Lagoon). Basic infrastructure has been purchased and is in daily use by management and field personnel. Links with the local administration are very firm and positive, and sensibilisation efforts with local people have done much to explain the purpose of the project and gain broad acceptance of our presence and goals. Staff have been hired and trained, and now undertake surveillance, monitoring, and education missions both within and outside the protected area. Patrols and permanent camps have permitted us to vastly reduce the scale of the biggest threat to natural resources in the area, ie, uncontrolled illegal industrial fishing. We have also begun to work with local small-scale fishermen in an attempt to gauge the effects of protection measures on their catch, and also to examine possible avenues for management of their fishery and fishing practices. Data collection has also been underway on the annual oyster harvest in Mayumba, showing a dramatic reduction in the resource and indicating its potential collapse in the near future if management steps are not taken swiftly.

We have pursued an extremely active and dynamic outreach program throughout the three years of the project, first visiting schools in Mayumba town, then expanding the program to include all villages in the periphery of the protected area. We have worked with pupils, teachers, and the education authorities to design and implement activities aimed at reawakening local young people to the richness and importance of their natural heritage. Events for adults have also been held in Mayumba town, such as the very popular Environment Club Film Night, and free music concerts in support of the national park. The outreach program has also begun work in spreading basic preventative medicine and wellness advice in villages, including presentations on avian influenza, malaria, and diarrhea.

We have completed the terrestrial delimitation of the national park and explained its borders and regulations to land-users in the area. Information packs were also sent on several occasions to industrial fishing companies operating in the area in an attempt to stimulate a voluntary respect of the park boundaries.

Park personnel have been stationed in coastal surveillance camps within the national park on a permanent basis since late 2004, and in addition to providing surveillance against illegal fishing, pollution incidents, and marine turtle presence, have conducted regular anti-poaching patrols, collecting wire snares and dissuading other illegal practices. The collection of baseline large mammal abundance data has been conducted providing the starting point for long-term monitoring of terrestrial wildlife. Abundance data are also taken seasonally on turtle nesting numbers, and the presence of humpback whales and dolphins.

2. Major Accomplishments and Results

Mayumba National Park

Mayumba National Park was created in 2002 by the same Presidential decree that established 13 national parks protecting 11% of Gabon's territory. Prior to this act, no zoning for conservation had taken place in the area, and the arrival in Mayumba of WCS (Dr Richard Parnell), and the government Conservateur (Solange Nguesso) in May and August 2004 respectively effectively saw the protected area conservation and land-use planning process starting from scratch. The first step was to establish a project headquarters, and the project swiftly located an ideal building sufficiently large to provide adequate office space for its needs, and housing for the Conservateur. The building is at present rented, but we hope, should funding allow, to purchase it in the future. A nearby boat hangar, workshop facility and dock on the Banio Lagoon has served as a perfect operations base for all missions and other park activity.

Four local persons were selected from over one hundred applicants to train as the Park's first ecoguards. The initial field training of these personnel took place in Gamba in a nationwide training program. Subsequently, another two ecoguards have been added to the project, plus a driver/mechanic, and a guard to assure security of the base at night and at weekends. Most subsequent training has taken place in the workplace, though more formal sessions have taken place, especially in large mammal monitoring, and turtle conservation and research methods. Other personnel taken on on a more temporary basis have included domestic staff and seasonal students. A major emphasis has been placed on team-building in Mayumba, and the project has largely been free from many of the personnel problems that afflict larger projects. A strong sense of responsibility and pride has been nurtured from the start, such that all Mayumba staff are genuinely committed to their tasks, and invest considerably more of their time, energy and dedication to the project than the minimum expected of them. This has been a major success of the project. Furthermore, by only hiring staff from the local community, project personnel have acted as ambassadors for the park and the rest of the program, doing outreach education in their homes and neighborhoods, and instructing park management of subtleties when dealing with local communities.

The entire terrestrial boundary of the park has been delimited following nationally agreed standards. Initially, information panels were placed on all the major access routes into the park (dirt roads, forest tracks, lagoon landing stages), while a simultaneous information and education campaign by the Conservateur and the region's government Prefect visited all the villages close to the park to explain the implications of the new zoning activity. A subsequent campaign

delivered the same message and explained the purpose of the park to each neighborhood in the town of Mayumba. Finally, the entire boundary of the park was marked using metal 'Parc National' plaques, and red paint. The maintenance of these limits will be assured by ecoguard teams. However the decision was taken not to cut a physical path following the limit, as much of it passed through highly inaccessible forest types and it was deemed inappropriate to in any manner improve access that might be utilized by hunters.

The park was created with the principal aim of protecting turtle nesting beaches, and as such the majority of our energy has been put into coastal surveillance. During the first year, this was achieved through a combination of mobile patrols and the use of temporary tented camps behind the beach. During this time, it became very clear that the terrestrial threats facing sea turtles (hunting or egg collecting) could be easily eradicated by ensuring the permanent presence of NGO turtle research teams and one team of ecoguards on the main beaches throughout the turtle nesting season (November to April). With the aid of NGO's 'ASF' and 'Gabon Environnement', we have been able effectively reduce turtle nest raiding on the park's beaches to zero. Ecoguards have also actively patrolled the 5km buffer zone to the north of the park, nearer to Mayumba town, where much egg collecting activity is still concentrated. A gentle and educational approach has been taken to egg collecting in this zone, with most non-repeat offenders merely having their 'haul' re-buried and their names taken for future reference. Only one course of legal sanction was pursued for a repeated campaign of commercial-scale egg collecting. Unfortunately with marine turtles still not enjoying total legal protection in Gabon, it has not been possible to completely eradicate nest raiding on the beach outside the buffer zone and especially close to Mayumba town. After heavy lobbying by WCS in 2003, a decision was taken to award total protection to all sea turtle species, however the painfully slow process of seeing this decision become law has hampered our efforts to see Mayumba become a totally turtle-friendly town. In the meantime, our efforts at changing attitudes through conservation education have been reinforced (*see MOV 'Outreach Program'*). Turtle monitoring data can be viewed in the MOV 'Turtle Monitoring and Conservation in Mayumba National Park).

During the early stages of the project, through our presence on the beaches, and in meetings with local fishermen's groups and the authorities, it became clear that a more serious threat to sea turtles, and local livelihoods was menacing the park and its surrounds; that of illegal industrial fishing. So serious did this threat appear that its mitigation became the principal objective of surveillance and control activities in the park, and to a large extent the peripheral and community zones for the rest of the first phase of the project. The following box feature summarizes this program, which has to a very real extent been a success story within the larger program of activities in Mayumba. The park now covers over 30km of its coastline with 24hr visual and radar surveillance, with communications capacity linking it to the Park headquarters and the local Gabonese Navy base for whom it supplies intelligence for missions outside of the park. Regular patrols cover the remainder of the park, and turtle NGO teams also provide surveillance support during the nesting season. A second permanent base is under construction in the southern sector of the park so as to ensure full time visual and radar coverage of the entire coastline within the park. An observation tower is also planned to assist the Navy in Mayumba to carry out effective surveillance of the fishing zones outside the park. Many trawlers, wary of surveillance efforts during the daytime, take to fishing close to the coast after dark in order to avoid detection or identification. Radar technology can now permit such vessels to be tracked throughout the night, such that they can be apprehended at daybreak, even if they have fled the coast for legal waters further off.

Our commitment to eliminating illegal fishing in and around the park has been a useful bargaining chip in gaining the trust and support of local people, and fishermen in particular. The threat to local fisheries is a concept that fills all of the region's inhabitants with alarm, relying as heavily as they do on fish protein both from the sea and from the Banio Lagoon. However, work still remains to be done in reminding communities that these systems are intrinsically linked, and that controls at sea will be of no benefit unless sustainable management practices are followed in artisanal as well as industrial fisheries.

Illegal Fishing in and around Mayumba National Park: A threat to protected wildlife and local community fisheries,

For many years, the industrial shallow-water trawler fleet in Gabon has fished with very little control or surveillance. With the exception of a seasonal ban on shrimp fishing in the north of the country, there has been little capacity to adequately patrol fishing zones. In particular, 'Zone Two' is a 5.5km band parallel to the coast, which is reserved only for 'artisanal fishing', i.e., small scale non-industrial fishing that typically feeds, and provides income for, the adjacent coastal communities. The lack of effective policing, particularly of Zone 2 had led, by 2004, to a widespread and almost systematic disregard for zoning laws by several industrial trawling companies. Local fishermen all attested to dramatic reduction in catches as a result of illegal trawling, and on many occasions, fishermen's nets were snagged by trawl gear and lost. Trawl nets are also heavily implicated in the accidental capture and drowning of sea turtles worldwide. In nations such as the USA, Australia and Nigeria, trawling, especially for shrimp, is illegal without the use of turtle excluder devices (TEDs), which permit trapped turtles to escape trawl nets.

The establishment of Mayumba National Park initially did little to deter illegal fishing. Trawlers used the protected zone as they treated the rest of the coast, with complete disregard for zone restrictions. In response, the project held meetings with the government fisheries department, local authorities, fishing communities, and with other landscape partners. A draft surveillance plan was created using terrestrial surveillance camps staffed by park personnel. The implementation of this plan began in earnest in late 2004, following the model already functioning at Iguela, mid-way up the coast. A basic tented surveillance camp was erected behind the beach at the park entrance, and equipped with telescopes and digital cameras. From the start, these teams were extremely successful at generating illegal fishing reports for delivery to the park and fisheries authorities. At the same time, information packs were sent to all fishing companies, reminding them of existing zone laws, and explaining the new zoning implications of Mayumba National Park. The Fisheries Department was lobbied in order to see offending companies called to account and sanctioned. Turtle monitoring NGOs were also requested to collect data on illegal fishing during the turtle season, and to note any examples of dead turtles on the beach. In 2005, the project began building its first permanent surveillance base in the park. In addition to guard housing, an 8m high observation tower was built and equipped with VHF and HF radio, and a powerful radar system, allowing staff to locate the exact position and bearing of vessels, even at night or in thick fog. Mobile car and quad bike patrols also tracked the movement of trawlers, and the project patrol vessel was used to collect GPS and photographic evidence to be used in official reports. Finally, the project forged cooperative agreements with the local fisheries department and the local Navy Base, lending materials and offering support in return for the execution of joint missions and assistance in combating trawlers, particularly in areas outside the Park.



Since the start of the project, we have delivered illegal fishing reports on 41 vessels to the authorities. In February 2005, 16 vessels were the subject of reports by park staff. In the same month a year later, no illegal incidents were reported, despite the same level of surveillance effort. Indeed in the first 9 months of 2006, only two reports have been established by staff operating surveillance in the park. With the almost total removal of trawlers from the park, more pressure has been felt in the peripheral zones. However, joint efforts with the Navy and Fisheries Dept are cracking down on even this. Fisheries monitoring is now underway to measure the effect of this protection of the fishery from industrial overexploitation. Efforts are also underway to persuade the government to make the use of TEDs mandatory to further reduce turtle mortality. The project has been central to Landscape-level efforts to create a network of such surveillance capacity and has secured additional funding to see this successful program continue and expand.

While the principal effort within the park has been to reduce threats to sea turtles and fish stocks, considerable effort has also been put into baseline data collection to describe the nature of the protected area. Regular patrols have provided preliminary mammal, bird, and reptile lists for the park, which have been used to help plan management strategies, and in the creation of promotional and educational materials. The park has been extensively mapped using a GPS in order to produce layers for the Landscape land-use mapping efforts currently underway. All boat landing places, paths, roads, and camps have been mapped and made available to the Landscape database. A program of baseline monitoring of large mammal presence has been conducted, using 'recce' transects in a grid perpendicular to the coast. This work has produced our first relative density maps for species such as elephant, sitatunga, gorilla, and also for human signs (snares, machete cuts, paths etc). The data is now being used to help plan patrol activities throughout the park, and yearly repeats of the lines will ensure that changes in animal densities are detected and fed into management strategies in the future.

There are currently no programmed eco-tourism activities within the park. The reason for this is primarily the lack of any serious investors in the tourism field in the region. The project has worked hard to first learn what riches can be discovered within the park, and then to make these riches visible to potential tourism investors. Unfortunately considerable time was also put into negotiating and lobbying with a potential investor who, having obtained use rights to a long closed, but beautiful hotel on the Banio Lagoon, announced his intention of seeing Gabonese law changed, and a lethal sport-hunting operation open near Mayumba. A large hunting concession

was offered on the opposite bank of the lagoon, and the project employed a professional hunter to accompany safaris aimed at killing principally elephant, and also buffalo, sitatunga, bushpig and other wildlife. After many meetings, the owner of the business announced his desire to abandon the sport hunting idea in Mayumba and concentrate instead on ecotourism. Unfortunately, this has not come to pass, despite considerable help from the park in producing promotional materials. Instead, the operator has apparently leased the hotel to a French oil company intent on laying an oil transport pipeline across the national park (*see* Landscape section). Meanwhile a new hotel has recently opened in Mayumba, and the project is entering into negotiations with the owner regarding possible future activities including turtle tourism in the Park.

Community-based natural resource-use zones and community activities

One main CBNRZ was identified during the project, being the community fishing grounds. This itself can be sub-divided into two smaller sub-units, being the sea-fishing ground utilized by the Beninese community in Mayumba, and the brackish and freshwater inland fishery of the Banio Lagoon, utilized by Gabonese commercial and subsistence fishers. Fishing is critical to both the social and the economic well-being of the area, as there are no other substantial areas of employment or commercial companies established in the region. However, active management of the resource based on scientific data is almost non-existent. The local fisheries department, while equipped with a new office, has no working patrol vessels, either for sea or lagoon use, and is thus severely hampered in their attempts to police and encourage management of the resource. To ameliorate this situation, a project outboard motor has been made available to the department for use with a local pirogue as a stopgap measure. A digital camera and GPS have also been supplied, and training given in their use. The project has also assisted both the Fisheries Dept. and the Navy with the production of reports based on their own missions. Evaluation of remaining fish stocks and a true measure of fishing effort has yet to be made for the lagoon fishery. However, a socio-economic study of Mayumba and the park-edge villages undertaken by the project has showed that while unemployment is worryingly high, fishing remains the most important single activity to the inhabitants. At the same time as collecting socio-economic data, the team collected information on the type of fishing conducted in the lagoon, and the numbers of nets being utilized by each person in each village. A summary of this data appears in the MOVs, and a new grant has been applied for to bring fisheries management expertise to the lagoon fishery during a 3 year period, working with fishers associations to bring about constructive change for the future. In the sea fishery, an initial evaluation of the status of fish stocks was made using a new evaluation method known as PARFISH. Developed by the UK Department of Overseas Development, the method uses a variety of data sources from interviews to fishing experiments in order to generate a model of the status of the fishery. The method is unique in its highly participatory approach, involving local fishermen at every stage of the process, and going to great lengths to explain the concepts of sustainable management. The project began the process using a fisheries consultant, who in turn trained a local ecoguard in interview technique, thus assuring adequate follow up and the completion of the data collection process. One disappointment was the considerable time taken to receive results from the initial data collection period. This was due to a failure of the original consultant and the time taken to correct and analyze new data. This is an important observation, as it became clear that rapid, pertinent reporting was a vital element for the fishing community, who have already become jaded by promises of help and support in the past, and are rightly skeptical about outside interference. Thus, while the results from PARFISH are interesting and helpful, the project is now considering whether or not to continue the program, or to adopt a more decentralized 'do-it-yourself' approach to monitoring. We are currently employing a government conservation student to collect new data on fish catches linked to fishing effort, using GPS units aboard vessels to locate fishing grounds. A large inventory of species has already been amassed,

leading shortly to the production of an identification guide for local fisheries office employees, who will continue the new data collection method following the departure of the student. Fishermen have so far been somewhat resistant to the new method as it extends slightly the time taken to sell the catch, and because they are concerned about their fishing methods becoming common knowledge. They are also not yet convinced that such programs are not more trouble than they are worth. Important in this respect is the knowledge that sea fishing in Mayumba is conducted by non-Gabonese fishers, who do not see Gabon as their home, and who send much of their income out of the country. To these people, the sustainable management of the resource for the long-term benefit of future generations is not as high a priority as is catching as many fish as possible for as long as possible before having to consider other options. Considerably more work needs to be done in this community to foster a sense of responsibility for the resource. Years of abuse by industrial trawlers have proved a convenient 'bad guy' to the community, such that they currently do not see themselves as in any way a part of the equation for healthy stock management. This is likely to be an erroneous view, especially in some areas such as shark fishing, where it is likely the community is doing serious damage to nursery grounds. The recent discovery that damage done to nets by what appears to be an increase in the number of parrotfish may be a first symptom of ecological imbalance due to overly reducing large predators in the system.

Another area of resource use in need of management planning that has been examined by the project is oyster harvesting. This traditional practice in Mayumba town involves local people diving to collect wild oysters from the sandy bed close to the lagoon mouth. Practiced only in the 4 month dry season, it provides an additional food source for the community and extra income for divers, oyster processors and sellers. For the past two years, the project has collected data on the scale of the harvest, and this year, began collecting life-history variables on the oysters themselves, in an attempt to describe breeding seasons and settlement/growth rates. With this information (see MOVs) we hope to provide management and land-use planning advice to the local authorities such that the apparent 'boom and bust' cycle of oyster numbers can be avoided, and a steady, biologically sound number can be harvested each year without threatening the population as a whole. Other lagoon communities on the Gabon and Congo coast have already decimated their oyster fisheries, such that the industry is now essentially dead in many areas. Threats to the success of this project include the fact that most divers are students home for their holidays, for whom diving is a source of a little extra income, and who have little interest in the long-term health of the resource. Also, oyster diving is strongly linked to traditional beliefs. Many Mayumba residents believe that oyster numbers are dictated by the whim of spirits who, through being angry or appeased, will determine the numbers of oysters present in any given year. Thus the notion that over-fishing may cause population collapse is often sneered at as the meddling of scientists who do not understand the true nature of things. The project is therefore in the process of attempting to set up an oyster fishers association, to build an informed body of consensus on the benefits of management. By working with the fishers themselves and the local fisheries department, it is hoped that management measures aimed at stabilizing oyster stocks and harvests can finally be agreed on.

Finally, in an attempt at stimulating a small income generating scheme for local villagers, the project has assisted in the setting up of a women weaver's cooperative in the village of Mallembé, close to the park boundary. Raffia palm mats have been a part of the traditional culture in the area for generations. They were woven locally by women and girls, and given as gifts for marriages or other ceremonial events. In recent years, the value placed on these mats has diminished, and although still practiced, the art of preparing, coloring and weaving them has been under threat as fewer and fewer girls learn the skills from their mothers or grandparents. Recognizing a potential way to gain extra income for the villagers while at the same time reviving an important traditional practice, the project first held meetings with villagers to gauge

their interest, and then approached a number of high-end gift boutiques in the city of Libreville to gauge theirs. By providing a simple link between supply and demand, the project has been able to completely rejuvenate mat weaving in the village. While deeming it important to retain the pricing structure on mats used traditionally within the community, we have negotiated a much higher price in the Libreville gift-shops, thereby doubling the money received by the women for each mat. This has had the immediate effect of generating renewed interest in weaving, and young girls are once again actively involved in learning the old techniques. In the town of Mayumba, the project has worked with several weavers in creating a range of mats with new designs linked to Mayumba's wildlife, including whales and dolphins. These have also proved very popular with visitors to the town. Following the success of these initiatives, the project is now looking for other craft products to promote, generating renewed interest in traditional skills, and providing a high quality gift for visitors.

Landscape level actions and outreach projects

Almost all the key threats addressed by the Mayumba project have their roots in regional, national, or even international problems. As such, the Landscape approach has been particularly effective as a means of tackling these issues.

Pollution of the coastal sea and beaches of southern Gabon has become a regular event. The plethora of offshore oil wells in Gabon, Congo and Angola/Cabinda, and the tankers that serve them, pose a very real threat of environmental catastrophe, and are a persistent cause of lower levels of oil washing up on Mayumba's beaches throughout the year. Furthermore oil exploration through seismic shooting is a potential source of environmental nuisance or even danger to some species. The project has tackled these issues in a number of ways during its lifetime. Firstly, we have mapped the presence of oil infrastructure onto GIS layers in order to determine particular threats and pressures. Secondly, the project has attempted to meet as regularly as possible with the oil companies in our sector to discuss ways of working together to limit impacts. Thirdly we have helped to stimulate the creation of, and contributed to, a major WCS report on mitigating oil industry impacts in Gabon – particularly on marine mammals. This document has been through many forms, and has taken a long time coming to a final press version as WCS has made great efforts, in a unique initiative, to seek industry 'buy-in' to the report, such that rather than it being a wish list, the document represents an actual blueprint of what industry and environmentalists think can be done practically. We have achieved this by the holding of a major conference with oil industry trade associations and companies, and through offering the text up for editorial comment by oil companies. We are delighted to report that this process is now coming to an end, and we expect to be able to use the final, harmonized report by the end of 2006. The Ministry for the Environment has shown great interest in working with this document, and we hope it will become a foundation for the way in which environmental impact studies for new oil projects are measured in the future.

Unfortunately, we have also had to deal with occasional incidents of oil pollution on the beaches of the national park and its periphery. Four major incidents and several smaller ones have been identified by project beach surveillance teams and boat patrols, leading to extremely rapid reporting to the authorities. This rapid response is unique to this part of Gabon, and the project has worked hard to expand the action into a Landscape-wide capacity. The near completion of our coastal surveillance network now gives us the means to communicate very swiftly with our landscape partners to effectively map the location of beach oiling precisely within 24 hours of its initial detection. The project has lobbied hard with the Ministry Hydrocarbons Department and has formed a partnership with the government Centre Against Pollution and the Ministry of the Environment in order to have our pollution reports treated with the seriousness they deserve, and to ensure an adequate subsequent response from government. We have made considerable

progress in this, and now receive visits from government representatives when a significant spill is reported. We have also greatly raised the profile of these issues as a national cause of concern, with the hope that the government will finally seek the capacity and political will to have



Ecoguards remove oil from the beach at Mayumba

samples from spills swiftly analyzed in order to identify the likely origin of the wastes in question.

Finally, the park has been threatened with the laying of an oil transport pipeline from an old wellhead in the buffer zone, across 1km of the park then out to sea, still within the park, to join an at-sea pipe network leading to a storage ship. The park obtained a

copy of the environmental impact study for this project and with the Ministry for the Environment, was able to have the study rejected. This was, however, only a temporary success, and the company has now produced a much improved report. The Gabonese government has meanwhile openly stated that it will allow oil and mineral companies to exploit resources within national parks, and the new national parks law has been altered to reflect this decision. It appears that the parks will have no choice but to accept the possibility of oil within their boundaries. Hence, in Mayumba, we are now preparing an accord listing the requirements of the park authority necessary to gain park approval of proposed projects. This will include environmental safeguards, impact limiting actions, emergency response assurances, post-production clean-up actions, and a compensation package to the parks for additional patrol and surveillance expenses incurred as a result of oil activities. Meanwhile, we continue to work closely with the anti-pollution centre and the Ministry for the Environment to ensure that despite the political decision of Gabon, rigorous standards are followed in all oil operations, but especially those concerning national parks.

In other landscape actions, the project has hosted several, and participated in all regular Landscape planning meetings with the Technical Management Committee (TMC), made up of Conservateurs, local authorities, and NGOs. Among the topics of these meetings has been the creation of the surveillance network and the development of a bi-national management and protected area, including Mayumba and Conkouati-Douli National Parks, and their peripheral zones. Draft documents for this project are now available, and the TMC is now poised to move the issue from a landscape level to a national one in the hope of gaining support from central government.

Outreach has been a major priority of this project from the start, and we have ensured that this program has been one of our most active. Principal among its goals has been the provision and improvement of environmental education for local children, for whom such subject matter was almost non-existent prior to the project. We have now grown from our original scope of providing classes and events to all Mayumba school children, to covering the entire network of villages surrounding the park. Monthly outreach visits to all villages now teach environmental science and conservation issues to school children, give film and slide presentations, and organize theatre and puppet shows. We have become a regular feature in Independence Day

pageants, and our Environment Club hosts a weekly film night on a big screen in Mayumba Town. We have supported sporting competitions and civic events, and have tried wherever possible to make the project a visible and positive aspect of people's daily lives. For the future



Village children learn about turtles and ecotourism

of our education outreach program, we are now working with the local department of education in planning the new school curriculum, and are further developing our international kid's art exchange program. In the last year of the project we have also begun to explore the provision of preventative health care information for the villages. In early discussions with village elders, healthcare and education were signaled as among the most pressing priorities, and we have ourselves witnessed the shocking lack of healthcare provision for outlying communities, and the lack of basic knowledge on staying healthy. In light of this, the project has piloted several initial health activities including a World Aids Day event in Mayumba, providing Avian

Influenza education to the whole of Mayumba town, the lagoon edge villages, and in conjunction with a local NGO, villages along the national highway north from Mayumba. We have also run presentations on malaria prevention, and the treatment of diarrhea in children. Finally, in conjunction with the Peace Corps, we have erected two latrines for the Mayumba College, which previously had no toilet facilities.

Another aspect of our outreach program has been tourism promotion and development. This area of activity is much neglected in the region, and yet is of potentially considerable importance to the local economy and the success of the National Park project. At the start of the project, there was no tourism infrastructure in the area, and no moves to stimulate this area activity. The few hotels were generally depressing and inappropriate, and there were no activities on offer to visitors. The project responded to this in a number of ways. First among these was to survey the available infrastructure and level of exposure offered by the area. Secondly, we appraised the potential for development, in terms of improvements to buildings, transportation issues, potential visitor experiences, and advertising. The major impediments to development were twofold: regular and convenient air transport, and the lack of a sufficiently high-grade hotel for visitors wishing to relax and discover the area from a suitably exotic location. As noted earlier, the finest site for developing a tourism base in Mayumba, the long abandoned but beautiful 'Safari Club Hotel', has sadly attempted to re-start big game hunting, and has subsequently opened its doors to a French oil company intent of placing an oil transport pipeline across the national park. Fortunately, another Gabonese investor has recently opened a hotel in Mayumba, with intentions of attracting tourists. The project is therefore working closely with the business to design activities for the future. Two guided walking circuits for visitors have already been created and the project has worked with a local entrepreneur to create a traditional dining experience complete with dancers and firelight. A tourism brochure has been created, as well as a short promotional film showing some of the attractions on offer in Mayumba and the park. The project has also created a 50 page website in French and English, covering all aspects of the area, from scientific research to surfing information, and from what to pack for a visit to which street food stalls are safe to eat at. Details of these products are to be found in the MOV tourism report and in the MOV products themselves. Without becoming a tourism operator itself, there is of course only so much that the project can do to make tourism work in Mayumba. However, we know that the recent opening of the new hotel in Mayumba was in some measure due to the vision and energy shown by WCS in promoting ecotourism. Our next step will be the planned

creation of a Mayumba town 'Committee for Reflection on Tourism and the Environment. This group, comprising local authorities, NGOs and local operators is aimed at providing a forum for discussion regarding a wide range of subjects affecting the environment and tourism, from controls on the plethora of telephone advertising hoardings covering the town, to ideas for a campground on the outskirts of the park for budget travelers, to the preservation of certain sites of architectural or cultural significance in the area. Beyond the limits of the park itself, the project has little legal mandate to alter decisions taken by the local and national government. But it is hoped that by airing concerns in open discussion, some influence and progress can be achieved. Finally, the project has endeavored to publicize the park and the area in general through radio broadcasts, and especially magazine and newspaper articles.

Conclusions

It is not easy to draw hard and fast conclusions from this project, as we consider it very much a work in progress, and a long term commitment. Firstly, the project has gained a very strong foothold in the physical, social and political fabric of the area, despite beginning at 'ground zero'. We have gained a good level of trust and acceptance among local communities through our outreach program and our employment of only local staff. We have made an extremely valuable contribution to conservation, primarily through our program of coastal surveillance, and our dedicated campaign against illegal industrial fishing. We have also greatly raised the bar in dealing with oil pollution issues. This was an invisible issue prior to the creation of the project, whereas we are now leveraging government and industry response to the problem, and assisting in shaping a new landscape of environmental responsibility in the government and industry. Certainly as important as these achievements has been the success of our education and outreach program, which has the intimidating but vital objective of treating conservation issues at their most logical source – the next generation of resource-users. Many times, the project has been told by elder members of the society that it is too late to change bad habits in the older generation, and it is with the children that change will come. We have found considerable value to this observation. In terms of landscape land-use planning, the Mayumba project has made considerable progress towards creating a coastal surveillance network of great value to controls on illegal fishing, oil pollution, turtle strandings and marine mammal activity. We have also had an important impact in raising Landscape coastal issues to a national planning level, including reports on oil pollution response.

The value of the 'Landscape' approach has been considerable for this project. This is particularly so, as our Landscape partners, unified by sharing a coastal sector, share many of the same direct problems and requiring the same solutions. Fisheries and coastal pollution issues are by their very nature, regional issues, and despite the necessity of working in specific sites, anything other than a regional response to these threats is ultimately doomed to failure, whatever the advances made by a particular site. However, CARPE should be aware that in some activity areas, the partners can do little more than suggest and assist in the promotion of possible avenues for land-use planning, lacking a clear mandate to work in some fields. Our support role in the National Park is clear but in community resource-use zones outside of protected areas, any influence must be hard won through diplomacy with the authorities, and by persuading communities that projects are of benefit to them.

In terms of management and monitoring tools, the CARPE project has clearly worked hard to develop an effective structure for reporting. The evolution of this process has not been without its frustrations for the projects themselves, and in Mayumba, we have spent more time than we would have liked in adapting to new matrix designs and directives. We trust, however, that the process is now complete and work will have been worthwhile. It should be stated however, that the value of the matrix itself to this project has been negligible. It is probable that the document

serves as a quick check-sheet for CARPE to review progress, but as a management tool for field projects, it is not essential. However, the hyperlinking of MOVs to activity lines does provide our headquarters with a useful database in an accessible format.

Lessons learned

The principal lesson learned in the execution of the Mayumba segment of the Landscape has been the enormous value of working at many different levels, within the community, the local government, and the national government. It is hard to pinpoint one of these actions that is of greater importance than the others, as in the long run, shaping the attitudes of six year old may have as much or more significance as signing a memorandum of understanding with a government office. We can be sure that both are necessary steps towards our objectives and the neglect of one element threatens the integrity and success of the others. This realization places enormous burdens on a project with little financial freedom to hire additional skilled personnel, stretching existing staff to an extraordinary degree. In this climate, it is imperative that reporting be designed such that it places as little as possible additional workload on management staff.

Recommendations

Given the above observations, an immediate recommendation is to reduce the burden of six monthly reports. Submitting these places a strain on small projects, especially when the CARPE review process subsequently recommends changes or additions to the reports. A report should provide a platform for the project to say what it has achieved, and there seems little value in suggesting that there is a right or wrong response. In terms of reporting in general, we salute the continued weight placed on the simple narrative report, as this is a more logical and free-flowing method than the matrix.

The Mayumba project would also like to suggest the abandonment of activity-based financial proposals and reporting. It is our experience that this is an artificial process that does not produce the desired costing of conservation activities. In practice, it is difficult to accurately allocate receipts for commodities paid for to specific activity fields and any move to suggest that percentages of expenses be allocated to activities will inevitably result in project managers spending too much time juggling accounts procedures. Naturally, proposals need to be activity-based, as do reports; however, projects should be free to set their projected expenditure based on actual projected expenses (ie, the classic budget line items of fuel, labor, equipment, rental etc.) rather than an estimation of, for example, how much of their fuel budget will go to education and how much to surveillance. Projects must be held accountable to deliver sufficiently on the activities proposed, and their success judged by their progress towards stated goals, however activity-based financial accounting places an extraordinary strain on thinly staffed projects and is counter-productive as it is extremely time-consuming and its intrinsic imprecision makes its worth as a management tool of dubious value.

As a final observation, in the case of the Mayumba project, financial insecurity creates a climate of uncertainty that can potentially be damaging to a project. For instance, being led to believe that a forth year of funding is likely and will follow previous funding levels, only to learn, during the year in question, that no fourth year will be forthcoming and in fact, funding levels will be cut by over 50% is not conducive to the success of frontline conservation and natural resource management projects. Project leaders should not be kept guessing until the last minute. Some activities are better not started if they are destined to run dry before reaching maturity, and CARPE would be well advised to address how it interacts with its projects regarding this issue in order to avoid failures and frustrations in the field. In general, project leaders are involved in the strange alchemy of turning very limited funds into genuine success stories. CARPE needs to

examine each step of its interactions with field projects, actively searching for ways to make this difficult but immensely worthwhile task as easy as possible for its project staff.

To end on a positive note, however, the Mayumba project owes an immense debt of gratitude to the staff at CARPE for their continued belief in, and support of the project. CARPE funding has been the key to the success of the project so far, and the 'landscape', with both a large and small 'L' would be a very different place without this vital assistance.