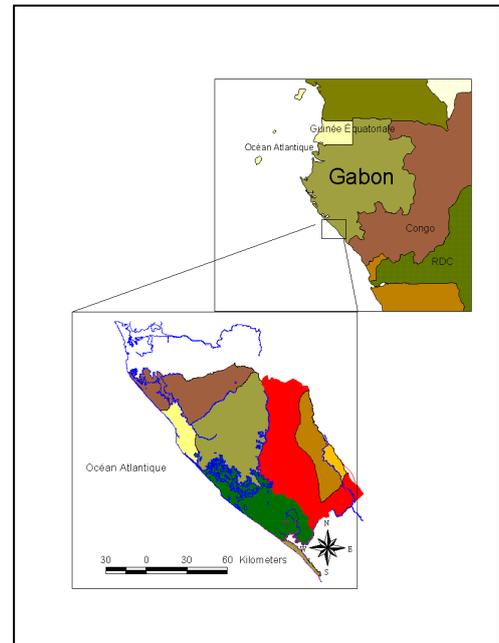
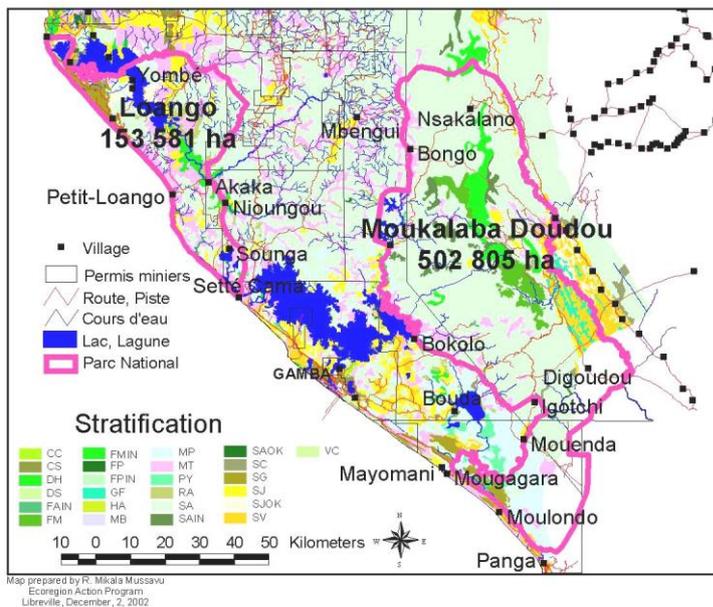


CyberTracker Software

Cybertracker Monitoring Program in the Gamba Complex of Protected Areas

The Gamba Complex of Protected Areas (11,000 km²) is located in South Western Gabon in West Africa. It comprises equatorial rainforest, forest - savanna mosaic, and coastal mangroves and lagoons. It is considered to be one of the best preserved landscapes of its kind in Central Africa. The Gamba Complex has long been recognized as a key site for biodiversity conservation. It used to comprise eight different protected areas. It now forms part of the 'Gamba-Conkouati' trans-boundary forest landscape which is selected as one of the 11 key landscapes within the Congo Basin Forest Partnership Program (CBFP) launched during the World Summit on the Environment in September 2002.



Two of the 13 recently created Gabonese National Parks are located in the Gamba Complex. These are the Loango National Park with a size of 1,500 km² in the North-west, and the Moukalaba-Doudou National Park with a size of 5,000 km² in the Eastern part of the Complex.

The Gamba Complex comprises a rich and diverse succession of habitats. The coastal habitats include beaches, and the large Iguela and Ndogo lagoons, mangroves and littoral thickets, coastal forests and savannas. This habitat gives way to lowland swamp forests, equatorial rainforest and, in the Moukalaba area, semi montane forests. The dry-land forests are interspersed with large stretches of mixed swamp-forests and woodland patches in savannas. Grasslands are widespread both along the coast, where they include extensive seasonally waterlogged savannas and herbaceous swamps. The Moukalaba-Doudou National Park has tall grass savannas and wooded grasslands.

The wildlife in the region is abundant and high densities of large mammals such as forest elephant (estimated population 11,000 individuals), forest buffalo, red river hog, gorilla and

chimpanzee have been recorded. 12 species of forest antelope (duikers and sitatunga's) are present as well as 9 species of primates (e.g. white collared mangabey's). Hippopotami and manatee are also present.

The avifauna is represented by many spectacular species such as pelicans, ibises, hornbills, turacos and bee-eaters. A total of 470 bird species have been recorded, of which 80% are breeding residents. Three species of African crocodiles are found in the complex. The 200 km long coastline is of global importance as breeding area for several species of marine turtles, including leatherback and green turtle.

Some 9,500 people live within the Gamba Complex. About 7,500 people reside in Gamba town and their presence is mostly linked to the oil industry. Oil and gas exploration and production concessions are located in the reserves between the two parks and off shore. A large oil export terminal, operated by Shell Gabon, is located on the coast near Gamba. Some 30 small villages and settlements with populations ranging from 15 to 350 people are located within in the Complex. The main towns around the Complex are Tchibanga, Mandji, Moabi, Mayumba and Omboué.

In 1985, the Gabonese government asked WWF and IUCN for advice on how to manage protected areas in Gabon. As a result, the Gamba Complex was selected as a priority area for tropical forest conservation. Since 1992, WWF has been actively involved with the Gabonese Ministry of Water and Forest (MEF) and its Hunting and Wildlife Department (DFC) to set up conservation management for the Gamba Complex. Other key actors include the Wildlife Conservation Society (WCS). WCS have a conservation and research programme in the Northern part of the Loango National Park. Since 2000, the Smithsonian Institution (SI), has been paid by Shell Foundation and Shell Gabon to carry out an assessment of biodiversity in the Gamba Complex.

After the creation of the Loango and Moukalaba-Doudou National Parks in the Gamba Complex in September 2002 a new conservation management program is being defined. The main activities of the program are summarised below:

1. Support the government with all aspects of Park Management for the Loango and Moukalaba-Doudou National Parks and the intermediate zone (Ngove-Ndogo and Sette Cama reserves). This includes ecological monitoring, research, financing and training of park management staff as well as the implementation of surveillance strategies to control illegal hunting and fishing (in-shore and off-shore).
2. Work with oil and logging companies to continue to improve standards and practices for operating in an environmentally sensitive area such as the Gamba Complex
3. Work with local authorities and oil companies to identify long term economically viable and sustainable development initiatives (cf 'After oil' Committee).
4. Involve and support local communities with the development of economical activities that are compatible with Park Management (sustainable fisheries, agriculture, tourism, park management).
5. Coordinate conservation and biodiversity related research programs.
6. Provide GIS-based data management services to support land-use mapping, zoning, environmental, biological and ecological monitoring and control.

WWF, WCS, PSVAP and SI will assist the Gabonese Government with the implementation of these activities.

In this context, the Cybertracker Monitoring Program established a collaboration with WWF. The Program proposes to support the different actors in the management of the area by providing an “easy to use” tool for data collection.

The CyberTracker field computer is designed to be quick and easy to use in the field, even by non-literate users. Scientists and conservationists benefit from the icon interface enabling significantly faster data collection than text interfaces or written methods. A user-friendly interface developed for PalmOS handheld computers allows field workers to record hundreds of detailed observations per day. The handheld computer is linked to a GPS.

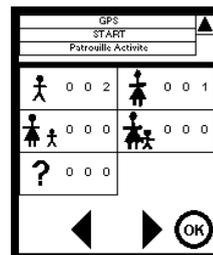
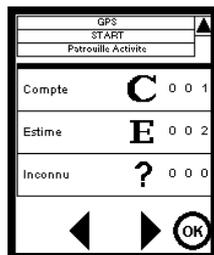
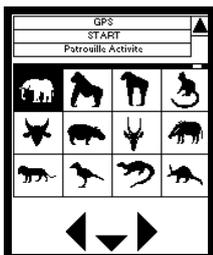
The CyberTracker software allows users with no programming skills to:

- Design and edit a database
- Customise screen sequences using the Screen Writer feature
- Gather data with the CyberTracker field computer
- View data with the CyberTracker Geographic Information System
- Export data for advanced analysis, e.g. to Excel or ArcView



Photos : The cybertracker field computer (left)

Data are exported for analyses (up)



Example : Elephant sequences : Sightings

For each organization active in the Gamba Complex, we intend to customize a cybertracker database serving the owner's with, in certain cases, additional indicators that will be useful to the common central database.

All the collected data are geo-referenced allowing a direct link with a GIS (Geographic Information System). This potentiality makes spatial analysis possible.

The objective is to define new indicators and methodology for collecting data in order to establish a reliable monitoring program for the Gamba Complex. Those analyses should also lead to define action points for a sustainable and efficient conservation strategy.

To reach this goal, The Cybertracker Monitoring Program proposes the following methodology:

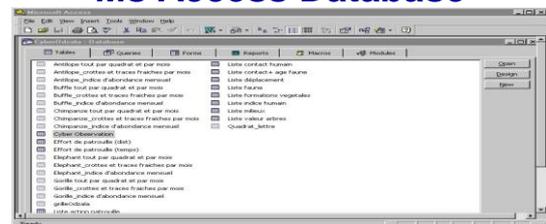
- Carry out an inventory of the existing data to establish a cartography usable by all the organizations involved
- Centralize the existing pluridisciplinary studies to make them easily accessible and identify gaps in the information available
- Train and assist the different organizations present in the complex
- Set-up a centralized Geo-databank
- Development of a training center for monitoring of management and exploitation of forest systems in Central Africa

From the Forest to the GIS :

CyberTracker System



Ms Access Database



Geographical Information System (ArcView)

Query, visualization, mapping and spatial analysis

