

BioMAP : Jan - Dec 2005

Summary of achievements against objectives

1: Upgrade & strengthen the National Biodiversity Unit

Target for year 1:

- *Existing structure of NBU assessed, identifying strengths and weaknesses.*
- *New staff hired, Terms of References (TORs) written.*
- *Existing NBU staff start to develop expertise in cross-cutting issues*

Achievements:

- NBU assessed using SWOT analysis
- New staff hired, TORs written
- NBU staff allocated to cross-cutting issues, and providing material to BioMAP

2: Improvements to biodiversity recording, monitoring & assessment

Assessment of the NBU database, and creation of a new database system

Achievements:

- NBU database assessed
- New database structure designed

(a) *Recording*

Target for year 1:

- *Every individual record of mammals, birds, reptiles and butterflies across the whole of Egypt captured in the database, and mapped in a GIS.*
- *At least 30,000 specimen records entered.*

Achievements:

- Published mammal, bird, reptile and butterfly records entered into database
- Verifying site locations (in Lat & Long coordinates) is our most difficult task
- 145,638 records in total entered
- Top-quality wildlife photographs of St Katherine PA obtained

(b) *Monitoring*

Target for year 1:

- *National standards for monitoring devised to integrate with databases;*
- *Demonstration programmes accomplished in St Katherine, Ras Muhammed, and Saluga & Ghazal*
- *20 PA rangers involved and trained in monitoring methodology*

Achievements :

- Course on Quantitative Monitoring written; will be delivered in Jan 2006
- Monitoring schemes devised and implemented for Saluga & Ghazal, Ras Muhammed and St Katherine
- SWOT analyses conducted in Saluga & Ghazal, Ras Muhammed & St Katherine
- 52 UK and 28 Egyptian undergraduates and staff, and 22 rangers involved

(c) Assessment/Evaluation of Biodiversity

Target for year 1:

- *User needs identified via a workshop.*
- *GIS layers identified and obtained.*
- *Mapping system under development.*

Achievements :

- *User workshop in planning for January*
- *GIS layers identified; all obtained except one (habitats)*
- *mapping method identified; Web-based delivery under development*
- *pilot project on biodiversity assessment almost complete*

(d) Themes and cross-cutting issues of the CBD

Target for year 1:

- *10 detailed web-pages completed, with case-studies and evidence, and placed on the CHM website*

Achievements :

- *more than 20 webpages finished in 10 case studies, almost complete*

(e) Designing protocols for regulating the collecting of specimens in PAs

Target for year 1:

- *Regulation protocol designed*

Achievements :

- *Protocol designed, fields identified, recording sheets devised*

3 : Biodiversity Strategy Working Group, and sustainability

Target for year 1:

- *Technical Unit established, meeting every 3 months*
- *TOR developed.*
- *Foundation for sustainability established.*
- *Consultants for assessing economic measures appointed and TORs written.*

Achievements :

- *Technical Unit established, not yet fully functional*
- *Assessment of Protectorate management using WWF RAPPAM methodology will take place in Jan 2006*
- *Foundation plan completed, but implementation cancelled because of inability to appoint our consultant*
- *Consultant for assessing economic measures appointed and work in progress*

4 : Develop a Communication, Education & Public Awareness strategy and a Clearing-House Mechanism

Target for year 1:

- *National and International Consultants appointed, TORs written*
- *Web-based delivery system of CHM under development, and at least 10 completed web-pages placed on it.*
- *Two guides produced*
- *University Biodiversity module under development*

Achievements :

- CEPA plan produced and integrated with the CEPA National plan
- CHM designed and implemented; content being filled; >80 webpages complete
- Two guides almost finished; consultant for automated electronic field guides appointed and will come in April 2006
- Consultant for university module appointed; will come in April 2006

5 : Update the plan for a Natural History Museum

Target for year 1:

- *National and International Consultants appointed and TORs written.*
- *Egyptian consultant's report received.*
- *First visit of International Consultant.*

Achievements :

- Consultants appointed. NC working; IC will come in Jan 2006

Appendices

- Appendix 1: Staff involved with the BioMAP project
- Appendix 2: TORs of staff in BioMAP, and suggested TORs for NBU staff
- Appendix 3: Summaries of work done by full-time staff members
- Appendix 4: SWOT analysis of the National Biodiversity Unit
- Appendix 5: Design of the database system of BioMAP
- Appendix 6: Screenshots of the data-entry system of the record database
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- Appendix 26: WWF RAPPAM questionnaire translated into Arabic
- Appendix 27: The economic value of *Acacia* in Gebel Elba PA
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BioMAP : achievements to Dec 2005

The format of this report follows the outputs of the Inception Report approved by the Steering Committee on 27th May 2005. We have also provided the updated Annual Work Plan with all the relevant entries updated.

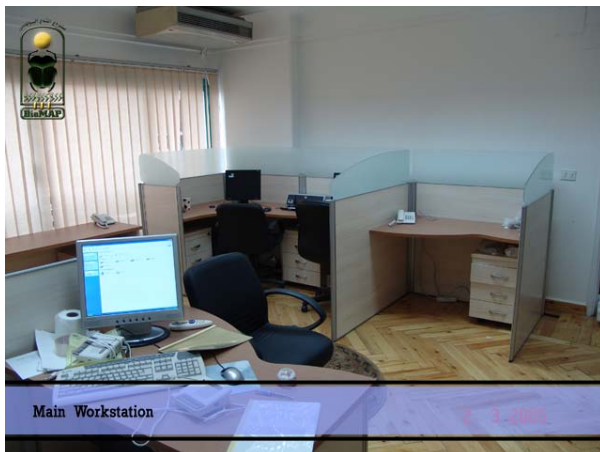
1: Upgrade & strengthen the National Biodiversity Unit (NBU) of the Nature Conservation Sector (NCS)

Target for year 1:

- *New staff hired, Terms of References (TORs) written.*
- *Existing structure of NBU assessed, identifying strengths and weaknesses.*
- *Existing NBU staff start to develop expertise in cross-cutting issues (see below)*

The office was **established** by Jan 2005, and has been **fully operational** throughout 2005:

- Space was identified in consultation with Dr Fouda and office **planned**
- 3 rooms were **refurbished** and building alterations **accomplished**
- A Local Area Network and Internet connection equipment was identified, procured and **installed**. The fast speed and reliability of the connection (2 MHz) has been vital for the efficient working of BioMAP staff.
- Computer equipment identified, procured and **installed**



Main Workstation



PMU

New staff have been **hired** (Appendix 1) and their roles in BioMAP **delineated** (TORs attached, Appendix 2; summary of work reports, Appendix 3):

- an **Office Manager** (Noha El Said) was hired right in Nov 2004, and she and Dr Zalat created the physical office space. Her job is to manage all the work of the staff, to troubleshoot all problems and to record the financial aspects of BioMAP for reporting. She left BioMAP in July due to a family move to Qatar, and was replaced by Walaa El Malti.
- a **database designer** (Alaa Awaad) has as a main job the design and implementation the database so that our consultants and researchers can input the records of individual sightings/ specimens for mapping. He has created the data-entry system, and a method to upload taxonomic names and records from Excel inputted by home-based consultants. He has also created databases for the Nile Islands, NCS books and reports, BioMAP staff, and BioMAP expenditure.
- a **web & graphic designer** (Ahmed Jacoub) has the principal job of designing and implementing the two major websites of the project (BioMAP and the Clearing-House Mechanism). The initial CHM design is complete, and more than 80 webpages are ready to be linked to it: we are currently consulting about the design, and will finalise it

shortly. Then we shall implement it, edit and check it before making it live. We shall be adding new material all the time.

- a **Finance Officer** (Lamia Esam Eldin Hussein) takes care of all records and reports to the UNDP of financial matters associated with BioMAP.
- implementation of the Clearing-House Mechanism is the job of **CHM workers**. Nermin Omar worked on the Convention for BioDiversity and its initiatives, and (with Ahmed Jacoub) the design and implementation of the CHM. She left BioMAP in Nov 2005, and the CHM work is now being expanded and extended by a number of staff (Jasmine Salem, Muhammed Haggag, Nancy Hamid).
- A **GIS consultant** (Dr Abd El Aal Hassan Attia) was contracted to identify, obtain and implement the data layers we need. Other GIS part-timers include Keith Mortensen (who is producing a GIS layer of the habitats of Egypt), Ayman Toukhy (a St Katherine ranger, who is mapping the monitoring programme) and Hossam Abdel Moniem (mapping).
- A **Development Consultant** (Hilary Gilbert) worked in her own time to create a plan for an endowed Foundation to ensure the long-term sustainability of biodiversity monitoring initiatives that involve the local community: since April 2005 she laid the groundwork for how the Foundation will operate (see below). However, her official appointment as a consultant was refused, and this part of the work was discontinued.
- An International **Consultant for Communication, Education & Public Awareness** (Melanie Edmunds) developed a plan that implements parts of the national CEPA plan being put together by Gabriel Mikhail, and three other staff will start work in 2006, probably including Israa Saber (as **Media Officer**) who is currently working on Arabic versions of websites and documents.
- An International Consultant for plan for the **Natural History Museum** (Dr Graham Rotheray) will join the National Consultant (Hesham Henawy) in Jan 2006.
- A staff member (Israa Saber) is working for the project on **monitoring protocols**, translating into Arabic the WWF RAPPAM methodology (Appendix 26).
- A number of **Taxonomic Experts** on specific taxa are extracting and entering records of their particular speciality (see Appendix 1)

The assessment of NBU has been completed:

- A SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) was **carried out** with all the NBU staff (attached, see Appendix 4). This has identified very effectively the key issues they face. As a result, BioMAP agreed to refurbish and re-equip the NBU rooms to address some of their space and equipment needs: this has been **completed**. From the SWOT analysis, we **recommend** the following priority issues to be addressed:
 - the creation of a clear mission statement for the NBU
 - the establishment of TORs for each member of the NBU, with targets and regular reviews of achievements against those targets
 - long-term investment in a fast Internet connection for the NBU is essential
 - the establishment of a system for the flow of information to the NBU. Every EEAA project should have as a condition of their agreement the requirement that final reports and all raw data should be passed to the NBU for cataloguing; furthermore, all records of species seen in specific locations at specific times should be provided in the correct format for the BioMAP database. Every relevant document should be passed to the NBU.
- The potential roles in BioMAP of the NBU staff were identified, and **TORs developed** (TORs attached, see Appendix 2). The staff have been working to these TORs for several months, and their work may be incorporated into the Clearing House Mechanism (CHM) and databases. As mentioned in the AWP, we hope that their closer integration with BioMap will happen in 2006. A number of issues should be addressed to ensure integration: staff availability and time, motivation, etc.

A **reporting system** has been established for BioMAP staff on a weekly/monthly basis.

Summaries of the work done by each full-time staff member are attached (Appendix 3).

A **website for BioMAP** has been established (at www.biomapegypt.org); currently it has 5 webpages, and as soon as the CHM is in its final design this will be added.

2: Improvements to biodiversity recording, monitoring & assessment

Assessment of the NBU database, and creation of a new database system

The current NBU database was **assessed**, revealing a number of problems in design, content and operation. Its major flaw is the fact that it is not based on individual records of the occurrences of species, fundamental to conservation practice world-wide (see, for example, *The Conservation Handbook*: Sutherland 1999).

The NBU database has other problems too. It is written in Access, which is limited in the database size it can cope with: it will not be adequate for the large number of records that will be entered into the database. It is based on particular sources, and often does not take account of available books, theses, revisions and the input of taxonomic experts: many of the names are out of date, and are incomplete for many taxa. Its estimates of the number of species in each taxonomic category are seriously awry. The database needs serious linguistic and scientific revision. The outputs are unclear, and it does not serve the needs of decision-makers.

Thus we needed to reform the structure of the NBU database. We **designed** a new system of interlocking databases to support accurate data entry, based on individual records (see Appendix 5). It is based on two main databases: the species-level database, containing information about each species (scientific name, common names, rarity, etc) and the specimen database (the sites and times where specimens of each species have been recorded). From these data, the system is designed to produce a set of user-determined maps that show biodiversity of any taxon of any type in any site in Egypt according to the latest and best information. For an individual species it will map the known distribution (as a dotmap), and estimate the probable distribution by using other GIS layers (habitats, topography, climate, soils, hydrology, etc) as predictors (there are currently a number of ways of making this estimation using various statistical techniques). It will also map species densities for any group of species (eg mammals, rare species, invasive species), allowing a 'gap analysis', i.e. an assessment of the adequacy of the Protected Area network in preserving Egypt's biodiversity.

The data-entry method has been **programmed** to make a simple but secure interface for data entry (see screenshots in Appendix 6). When complete we will provide the data-entry system to rangers, monitoring staff, researchers in Protected Areas (PAs), and members of the public, in order to promote recording data in the correct way and their subsequent submission to the NBU in a directly usable form. Currently we provide the shell as an Excel-based data-entry sheet, and Alaa Awaad has **created a converter** that can upload from and download to Excel.

We have also **produced** a database of the Nile islands, in response to a request from the Nile-Island Committee. There are between 67 and 391 islands (depending on when the count is made), and there has never been a collation of all the information about them. The database will hold information on a whole variety of different issues, such as ownership, population, resources, etc. The content of the database will be filled by the Nile-Island authorities, but all the design and implementation of the software was done by Alaa Awaad of BioMAP (screenshots in Appendix 7). When the content has been completed, this database will be placed on the BioMAP website, and made accessible from the CHM. It will form a valuable addition to the outputs of BioMAP.

(a) Recording

Target for year 1:

- *Every individual record of mammals, birds, reptiles and butterflies across the whole of Egypt captured in the database, and mapped in a GIS.*
- *At least 30000 single specimen records entered.*

A number of experts (Appendix 1) in different taxa have been engaged by BioMAP to retrieve and enter the individual records of species within their speciality from collections, papers, reports, etc. The full picture of the total number of records already **inserted** into the database is portrayed in Appendix 8. All the published records for mammals, birds and reptiles are already captured, and consultants are currently entering a large number of unpublished records. Some plant taxa are already complete, and others are being researched and entered. The largest single group of records are the aquatic invertebrates, representing almost half the total number entered. Insect groups are well represented with a large number of records, and the butterfly database is **complete**. Since we now have almost 161,000 records captured in the database, we achieved more than five times the year-1 target of 30,000 records. We are also collating into a database all the local Arabic names for the animals and plants of Egypt: we now have 7257 names from 10 sources.

Most records in the database do not have coordinates of latitude and longitude, but merely the site name. Before mapping the taxa, therefore, we **developed** a comprehensive standardized Gazetteer of place names (see example in Appendix 9) so that the names of locations can be converted systematically into coordinates of latitude and longitude. We also obtained another gazetteer containing almost 41,000 place-names in Egypt. It would be ideal if conversion of locations in the specimen database could be done automatically by a look-up table that cross-checks to the gazetteer, since manually cross-checking and entering several hundred thousand sites would take a great deal of time and effort. However, a number of well-known and long-standing problems interfere with automatic cross-checking and entering. The main one is the uncertainty of the spelling of the english transliteration of arabic place-names, and indeed many of the 41,000 names in the gazetteer database are synonyms of variant spellings. Such errors are a major handicap for mapping old records, and **checking** them occupies a substantial part of BioMAP time and resources. When finished, the freely available electronic Gazetteer of standardised place-names will be a valuable output of BioMAP.

We are currently checking and cross-checking the completed butterfly database for validity of the place locations so that the first maps can be produced. A few are almost completed (see below).

We invited three volunteers from the Nottingham University MSc in Wildlife Photography to come to Sinai in summer to take pictures of the landscape, people and wildlife of the St Katherine area. In return, they would allow the EEAA and BioMAP use of the resulting images, as long as they were acknowledged every time they were used. They **provided** 233 top-quality images of wildlife, and 209 of Bedouin life. The images have been lodged with the St Katherine PA and BioMAP. This was at no cost at all to BioMAP. We envisage more arrangements like this with the Nottingham MSc, since it seems so mutually beneficial.

The CEPA strategy (see below) envisages using these and other photographs in 2006 to establish a Wildlife Photography competition for Egypt. In the UK this is hugely popular and a major public-awareness coup: it could work in the same way here in Egypt.

Examples of the photographs produced by the three volunteers at St Katherine



Jennifer Johnson



Jennifer Johnson

(b) Monitoring

Target for year 1:

- *National standards for monitoring devised to integrate with databases;*
- *Demonstration programmes accomplished in St Katherine, Ras Muhammed, and Saluga & Ghazal*
- *20 PA rangers involved and trained in monitoring methodology*

A 2-day practical course on Quantitative Monitoring was **written** for rangers, and will be delivered in January 2006. The outline is provided in Appendix 10. It gives the background to monitoring, describes available standardized methods, and provides free software to implement the techniques. The methods are designed to integrate with the BioMAP database. In the near future, a Desert Conservation Ecology course **will be written** for rangers and other staff involved with monitoring.

In May, the BioMAP team **visited** Saluga & Ghazal Protected Area: our report (see Appendix 11) is only available in Arabic, but we summarize it here.

First, we conducted a SWOT analysis with all the staff there. The **strengths** of the PA were seen in terms of the natural disposition of the islands and the consequent benefits to the flora and fauna, despite being so close to the city of Aswan. The **weaknesses** included a general lack of facilities (computers, field equipment, uniforms, etc), public awareness programmes (environment education for schools and visitors, written information for local people, hotels, tourists, etc) and training for staff. The problem of very long delays for staff in getting paid by the EEAA was also raised. The requirement to report every month was seen as an unnecessary burden, since they thought that quarterly reports would be much better from the point of view of planning action and reporting on achievements. The close proximity of the hotels was also seen as a problem. The **opportunities** were seen to be many: the desire of local schools and universities to visit and be involved, the growing demand for ecotourism, the rich fauna and flora of the PA, and the possibility for investment in facilities. **Threats** were seen in terms of either physical damage (from shipping, fires, growth of hotel activity), lack of support from the EEAA, or lack of awareness by local people.

From an assessment of the PA, a recommended schedule of monitoring was **devised**, involving *Acacia* trees, breeding birds, a lizard and a beetle (see Appendix 12). The existing monitoring of migratory birds is excellent, and everyone agrees it should continue. BioMAP will provide satellite imagery from which individual trees should be recognisable and identifiable on the ground. This will allow the monitoring of individual trees.

After discussions with the staff of the PA, we were all enthusiastic about the possibility of **setting up an NGO**, run by the rangers and based in the PA, to encourage the use of henna and henna hand-painting as a local handicraft. A number of henna trees are being grown on Saluga, because this plant is locally rare. Furthermore, the island of Saluga is not wholly within the PA, but part of it is still farmed for alfalfa. We discussed with the farmers the possibility of growing henna as an additional source of income for them, and they were very positive. There are local people who would also be keen to run a hand-painting service for visitors to the PA. If successful, this would be an excellent way of encouraging biodiversity-friendly community development, and precisely the sort of community-based work that the Conservation Egypt Foundation (see below) is being designed to support. After discussions with the PA Manager and the local coordinator of NGOs, we agreed that the idea was feasible and should be pursued.

In July - Sept, the BioMAP team was in Ras Muhammed and St Katherine to set up a monitoring operation in collaboration with Operation Wallacea, a UK-based charity that links willing UK undergraduates and 17/18-yr-olds with conservation monitoring work in Indonesia, Honduras and now Egypt. The **UK students** pay to take part, and these funds allow the infrastructure to be put in place, and the running costs of the monitoring to be met. In Egypt, the generosity of the British Council allowed **Egyptian undergraduates and staff members** to take part, and BioMAP paid for **rangers** from various PAs to join in. 2005 was a pilot year,

with only 52 UK and 28 Egyptian undergraduates and staff, and 22 rangers (full list in Appendix 13).

In terms of infrastructure, the St Katherine work was run from the St Katherine Environmental Research Centre of Suez Canal University. In Ras Muhammed, accommodation was in the Bedouin campsite close to the Ranger centre, where the lab facilities were. Operation Wallacea (**not** BioMAP) provided a new compressor (\$18,000) and 15 sets of diving equipment, plus numerous smaller bits of equipment, repairs and other support.

In St Katherine, a monitoring protocol was **developed** for 3/4-day treks down different wadis in the PA; 29 wadis of four areas (the Ring Dyke around St Katherine, wadis around Wadi Isla, wadis near Ain Hodra, and wadis in and around Wadi Feiran).

The target species were taken from the StKP Management Plan of 2003, together with some common species as standards. We **produced** an identification guide for each volunteer, so that every member could identify the target species quickly and easily using colour pictures (see Appendix 14). This worked reasonably well, but in the future we will produce guides tailored to each wadi system because the flora in particular is quite different in the different regions of the Protectorate.

Each set of Research Assistants was split into two groups: one group recorded birds, lizards and butterflies along a slowly traversed transect walk in the early morning (producing data suitable for density estimation using the *Distance* program); the other group recorded plants and animal dung in a set of quadrats, with 2-3 sets carried out each day (also suitable for quantitative analysis). In addition there was a group trapping and recording bats. All methods also generated records that were entered directly into the BioMAP database.

The reports are **presented** in Appendix 15.

In addition, the following projects were **carried out**, and the full reports will be available in due course, when completed by the relevant undergraduates by May 2006:

- Insect-plant interactions on the Sinai Milkweed *Asclepias sinaica* (Simon Elliott)
- Grazing assessment using enclosures and Bedouin gardens (Katherine Butcher)
- Does trampling by tourists, Bedouin and camels affect plant performance? (Louisa Peaver)

Summaries of their findings are **presented** in Appendix 16.

At Ras Muhammed NP, Steve McMellor (paid by Operation Wallacea, not BioMAP) **developed** and **tested** a systematic method of assessing each dive site that experienced dive volunteers can use. His report is in Appendix 17. The method involves measuring a standard set of variables from the benthic component of the reef, and another set from the fish community. From these, good predictors for the region were identified using a set of reference sites, and then the reef index calculated. Benthic variables form a scale of quality from A to E, while fish community variables form a scale of quality from 1 to 5. Thus an A1 site is the top quality site for the region. The method was tested on 4 sites in the Park this year, and a further 20 sites next year. It will form a valuable way of managing dive sites in the Park by allowing managers to scale dive permits to reef quality.

A coral reef ecology course was **developed** by David Smith (Essex University) and tested by Gemma Fenwick and Muhammed Habib using the volunteers. The PowerPoint slide presentation (see Appendix 18 for the content) was delivered to the RMNP in September, and is available to the EEAA and BioMAP.

SWOT analyses was **carried out** with the rangers and staff of both STKP and RMNP in November (Appendix 19). These highlighted the natural beauty of all the South Sinai PAs, but listed a number of concerns, several of which were common to all PAs. The issues raised did not seem impossible to solve, and were concerned with revenue and capital financing, maintenance, support, central control of decision-making and delays in receiving the annual budget.

(c) **Assessment/Evaluation of Biodiversity***Target for year 1:*

- *User needs identified via a workshop.*
- *GIS layers identified and obtained.*
- *Mapping system under development.*

The user workshop will take place in early 2006: we have decided to combine this workshop with one that presents the database and its GIS results to interested parties. The reason for the delay is that we want to present some real maps of the distribution of particular organisms in Egypt, and this has been slow because of the problem of site names and their true location.

We have four test groups that we are piloting through all the stages of the mapping and assessment process: reptiles, butterflies, some plants, and molluscs. The mollusc database of 13,500 records is complete. The checking of the locations of the butterfly database (1443 records) and the reptile (9186 records) databases are almost complete. An **example** of a map is shown in Appendix 20.

We have **identified** what we need, and have **obtained** the following digital GIS layers:

- fully georeferenced Landsat satellite images of the whole of Egypt
- a Digital Elevation Model that gives us the altitude of any part of Egypt, mapped at a scale of 30 m
- a shaded topographic basemap derived from the DEM (see Appendix 21)
- climatic data (max, min and mean temperature, temperature range, precipitation, etc) on a 0.1° grid (from WorldClim)
- other climatic data (hydrology, depth to water, watersheds)
- other relevant layers (geology, soils, investment map for 2017)

Thus we have almost everything we need to the required level of detail, or more. The only layer we currently lack is a map of habitat types. Egyptian habitat classification has traditionally remained at the level of phytogeographic regions rather than proper habitat types in the sense of the European EUNIS classification. Since there are no proper deserts within the boundaries of Europe, the EUNIS habitat classification is seriously deficient for North Africa and hence for Egypt, although it was always supposed to have been extended for use there (but this never happened). It has therefore been necessary to **erect a new habitat classification** for Egypt (Appendix 22). Keith Mortensen, a GIS expert, is **doing a remote-sensing** classification to generate a GIS layer of the distribution of these habitats.

The mapping of the records is simple, once the geographical coordinates of each record have been entered. The generation of predicted species distributions will use several techniques: standard logistic regression modelling with binomial errors using a GLM; 'maximum entropy', devised by researchers in the USA (Phillips SJ, Anderson RP & Schapire RE. 2005. Maximum entropy modelling of species distributions. *Ecological Modelling*, *in press* [PDF available from BioMAP if requested]); and genetic-algorithm rule-based prediction (GARP) modelling. We are collaborating with UK-based conservation biologists (Professor Chris Thomas, York University) in the use of these methods.

Once most or all of the records of a taxonomic group have been captured in the database, and the predicted distributions of its component species have been generated using maximum entropy, we shall proceed to the next phase of this part of the work of BioMAP, that of presentation on the Web. We have now a clear idea of the webpage we want: the user must be able to control what layers are visible and what is being displayed, and at what scale. There are a number of ways of implementing this, and we are exploring the best and most cost-effective method.

(d) Themes and cross-cutting issues of the CBD*Target for year 1:*

- *10 detailed web-pages completed, with case-studies and evidence, and placed on the CHM website*

Information on invasive species, and on inland waters is being collated, and prepared for incorporation into the CHM. Case studies such as Water Hyacinth, Mangroves, Gazelle and Ibex are almost complete in their data-gathering phases, and now the task is to put the information together into a coherent account for a set of webpages. The work here was delayed by the resignation of Nermin Omar. The first to be **completed** in paper form rather than as webpages is on the invasion of *Prosopis* in Gebel Elba, done by Usama Ghazaly (Appendix 23).

(e) Designing protocols for regulating the collecting of specimens in PAs*Target for year 1:*

- *Regulation protocol designed*

We have identified all the relevant fields, and designed an Excel sheet for recording the information. This has been provided to the NCS (Appendix 24). Prof Zalut has been involved in organizing an extensive series of workshops on over-harvesting of animals and plants in Egypt, finishing in 2005. His report and CD (Appendix 25) are partly the work of the BioMAP team.

3 : Biodiversity Strategy Working Group & Sustainability*Target for year 1:*

- *Technical Unit established, meeting every 3 months*
- *TOR developed.*
- *Foundation for sustainability established.*
- *Consultants for assessing economic measures appointed and TORs written.*

The design and implementation of the Technical Units is the responsibility of the NCS Capacity-Building project, headed by Dr John Grainger and Dr Sherif Baha El Din.

In response to a request from Dr Fouda, together with the NCS-CB project we have planned a workshop for up to 5 staff from all PAs to assess how well the PA network as a whole is doing its job. There are some useful international tools for doing this, and we have chosen to use the WWF's Rapid Assessment & Prioritization of Protected Areas Management method. This is an excellent questionnaire for producing a quantitative overview of the status of PA management, with the added advantage that the results accord with international standards. We are going to hold a 3-day workshop in early January, funded by BioMAP and NCS-CB, to obtain questionnaire responses and analyse the results. As a prelude to this, we have **translated** the questionnaire into Arabic (Appendix 26), itself a valuable service to the world conservation movement: the translated version will be offered to WWF for dissemination on their website.

A mechanism for sustainability was envisaged in the Project proposal. Therefore, a plan for an endowed Foundation formed part of the BioMAP Inception Report. The Foundation was intended to form the central element that funds and sustains conservation-related community activity, initially just in the PAs. The way this was planned was put together by Hilary Gilbert, and is available if required. She worked on this plan unpaid, in anticipation of her contract being approved. This was turned down, however, and therefore our plans for sustainability through an endowed Foundation have been **abandoned**.

We have appointed Usama Ghazaly (ranger, Gebel Elba PA) as a part-time consultant on the economic assessment of biodiversity. He has started by making a **comprehensive assessment** of the economic value of *Acacia* trees in Gebel Elba PA (Appendix 27). He is now preparing a website that contains information on the local economic value of each of the major species of the PA: we give the example of *Prosopis* to show the format (Appendix 28).

4 : Develop a Communication, Education & Public Awareness strategy and a Clearing-House Mechanism

Target for year 1:

- *National and International Consultants appointed, TORs written*
- *Two guides produced*
- *University Biodiversity module under development*
- *Web-based delivery system of CHM under development, and at least 10 completed web-pages placed on it.*

Our International Consultant (Melanie Edmunds) **created** a CEPA plan after meeting with a large number of people including Gabriel Mikhail, the person appointed by NCS to create a National CEPA strategy. She devised a plan (Appendix 29) to implement various ideas of this National Strategy. She proposed and had accepted by NCS a plan to appoint three people to work with her on this implementation:

- a Media Officer to coordinate work with journalists and VIPs
- an Education Officer to assess the materials about biodiversity available to schools and universities
- a Communication & Events Officer to develop a Wildlife Photographer of the Year competition, and to work with dissemination of materials into PAs using Wadi Digla as a model

Their TORs show where their roles will fit into this plan, and at least two people have been identified who could be appointed. Melanie will return to Egypt in April 2006 for a more extended visit. We have encouraged journalists to visit our monitoring work in Sinai and BioMAP offices, and as a result a number of articles have been published (Appendix 30).

The first overall design of the CHM has been completed, with its structural outline (Appendix 31), and material to fill the content is being actively researched. A remarkable amount of information is available, but is largely hidden and difficult to access, and it will be our task to ferret it out and make it freely available and easily accessible on the CHM. A large number of webpages are already complete (eg one on Gebel Elba: Appendix 32), with many others in various stages of completeness. We are consulting with others about the structure of the CHM because many people have a stake in what it contains and how it operates. We shall only finalize its design after our user workshop in the New Year. It is therefore not yet live, and will not be live until the design is finalized.

We have finished the text and illustrations of *Gardens of Sinai: Bedouin heritage & Natural History* (see Appendix 33): it consists of 280 pages, with colour paintings on almost every page. This book introduces readers to the remarkable indigenous knowledge of the Gebaliya Bedouin of the St Katherine Protectorate, and provides detailed notes on the fruits and vegetables of their orchard agriculture farming methods. It also looks at the fauna of the gardens, since these are refuges for wildlife in the harsh environment of the high mountains. This book will be published by AUC.

We have asked Dr Brian Taylor (UK) to produce a website on the Ants of Egypt, and this work is virtually complete. This website will enable users to identify any Egyptian ant, and will make available all the literature and original descriptions, together with photos of the species and their characters. A number of other websites are under active construction, on Egyptian

spiders (by a group of Suez Canal graduates), Egyptian mammals (by Nancy Hamid Hareedy), and the flora and fauna of Gebel Elba by Usama Ghazaly (Appendix 34).

Dr Kevin Caley (Nottingham, UK) is an expert in the electronic production of field guides. He will come to Egypt to advise BioMAP on the automated production of field guides in a similar format to his Hong Kong guides published a few years ago. He will come in April 2006.

Dr William Trewhella (Creswell Assoc, formerly Nottingham University) has many years experience of producing multimedia courses on biodiversity for university-level students. He will bring a complete module for 3rd-year students in Egypt, and will tailor it for the Egyptian audience, by working together with an Egyptian expert (Aadel Suleiman) to modify the contents as appropriate. He will come in April 2006.

5 : Update the plan for a Natural History Museum

Target for year 1:

- *National and International Consultants appointed and TORs written.*
- *Egyptian consultant's report received.*
- *First visit of International Consultant.*

The Egyptian consultant is Hesham El Hennawy. He has started by reviewing the current position, and will report shortly. The International Consultant is Dr Graham Rotheray, currently Keeper at the National Museums of Scotland. He will be arriving on Jan 3rd 2006 for his first visit.



Professor Samy Zalot
4th December 2005



Dr Francis Gilbert