A Methodological Proposal for the Development of Natura 2000 Sites Management Plans

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ABSTRACT


This paper makes recommendations for the development of Management Plans for Natura 2000 Sites, enabling future managers and decision-makers to elaborate and implement their own plans more efficiently and in a more informed fashion. The original methodology entailed a 10 phase plan, starting with “Problem Classification and Stakeholder Identification” and ending with Revision and/or Reformulation of the Management Plan”. It was utilized during the Pico da Vara Special Protected Area Management Plan elaboration process in 2005 by SPEA, on the behalf of the LIFE Priolo Project. Subsequent feedback led to an improved, more complete and balanced methodology capable of avoiding the repetition of similar and future errors (about 80% of scheduled activities were achieved). Although it was not successful in obtaining full financing, this process succeed in characterizing the SPA and its conservation issues and in unifying the divergent interests of public and private organizations by involving them in the plan’s development. This proved that the success of effective Nature conservation and particularly of Natura 2000 depends on the synergy of fundamental practices, such as the production and sharing of accurate thematic geographic data (for characterization, analysis and monitoring), and also on guaranteeing the participation and co-responsibility of all stakeholders in the site management.

ADDITIONAL INDEX WORDS: Biodiversity Protection, Participative Management, Conservation GIS.

INTRODUCTION

Natura 2000 Network

The Birds Directive (79/409/EEC) established Special Protection Areas (SPAs) and Sites of Community Importance, creating the Natura 2000 network for the conservation of natural habitats and species (SCI) under the framework of the “Habitats Directive” (92/43/EEC). The Birds and the Habitats Directives, adopted in 1979 and 1992, respectively, are the main European Union (EU) legal frameworks for nature conservation (Calado et al., 2009). Their key objective is the implementation of a Natura 2000 ecological network of protected areas, resulting from the scientific evaluation of sites of community importance as proposed by Member States. The European ecological network, Natura 2000, covers areas on land and at sea, aiming to protect Europe’s most threatened species and habitats. The Habitats Directive intends to conserve biodiversity while also promoting sustainable activities which support the conservation objectives of the Natura 2000 areas, rather than ruling out economic development. To that end, the European Commission (EC) recommends the adoption of management plans for each Natura 2000 site in harmony with Article 6 of the “Habitats Directive” 92/43/EEC: “For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types […] present on the sites”.

Management Plans (MP) have been proposed Gil (2007) to facilitate the protection of Natura 2000 Sites (both SPA and SCI) in the Azores Archipelago (Portugal) due to the following reasons:

- There is an unusually high number of sites (15 SPA and 23 SCI) distributed throughout the nine islands of the archipelago;
- Standard Land Master Plans (at the municipal, regional, protected area or watershed basin levels) are not sufficiently developed or effective to guarantee adequate operational management of these sites;
- Most of these sites are located on private property or on public property belonging to various management entities. Both situations require dialog, negotiation and formal agreements to ensure effective and successful management;
- The scarcity of financing highlights the need for strategic, planned and programmed site management, carried out with transparency and rigor. The sharing of management responsibilities and the optimal use of
stakeholders’ human, technical, technological and financial resources are also required.

Management Plans
A Management Plan (MP) is a tool to guide managers and other interested parties so that they might follow a logical decision-making process (Rowell, 2009) both today and in the future (Thomas and Middleton, 2003). According to the Royal Society for Protection of Birds (RSPB, 2009) some of the most important reasons for the elaboration of a management plan for a Protected Area include: the evaluation of the site’s potential, the formulation and consensus regarding site objectives, the identification of site threats, the establishment of ranges of valuable and problem species numbers, as well as monitoring the sites conservation value and coordinating the interventions of different institutions involved in protecting the site. Successful management planning utilizes discussion amongst involved parties to systematically analyze threats and opportunities and various other difficult issues. The pre-determined order of the steps lends logic to the PA’s actions, in order to ensure the use of constantly updated information so that management may be frequently adapted to contextual changes without losing sight of its aims (Thomas and Middleton, 2003; Alexander, 2005).

Involving Stakeholders
Management Plans were initially drawn up and implemented by scientists. The resulting plans benefited from a solid characterization of the protected area, but often lacked similar quality in business and organizational aspects such as costs, resources and results. Stakeholders are those individuals, groups or organizations that are, in one way or another, interested, involved or affected (positively or negatively) by a particular project or action (Freeman, 1984). Involving people and stakeholders in planning and management brings important general benefits: increased sense of ‘ownership’, greater support for the protection of the area; greater public involvement in decision-making; closer links between conservation and development. This promotes communication potentially leading to the identification and resolution of problems (Gil, 2007).

Pico da Vara / Ribeira do Guilherme Special Protected Area
This Special Protected Area (SPA) is located on the largest island in the Azores, São Miguel, and is included in the municipalities of Nordeste in the north and Povoação to the south. The SPA currently covers an area of 6,067.27 hectares representing 28.3% of the total area of the two municipalities. It comprises one of the last areas of native Laurel Forest in São Miguel (Figure 1) and was classified in 1999 (Decree-Law 140/99 of April 24th) due to the presence and conservation status of the endemic Azores Bullfinch Pyrrhula murina Godman, 1866, one of the most threatened passerine birds in all of Europe. Its estimated population of 500-800 pairs is (Ceia et al., 2011) limited to a few fragments of remaining native vegetation. It is currently considered a LIFE Priolo Project success according to the Red List Data Book, after having been listed as “Critically endangered” in 2010.

METHODS
This methodology was partially applied during the “Pico da Vara / Ribeira do Guilherme” SPA management plan elaboration process in 2005 (S. Miguel Island, Archipelago of Azores, Portugal) by SPEA (Birdlife in Portugal), on the behalf of the LIFE Priolo Project’s Action 1 (Gil, 2005).

The feedback provided by all stakeholders during this experience led to an improved, more complete and balanced methodology capable of addressing the errors which had plagued the Pico da Vara / Ribeira do Guilherme SPA Management Plan Elaboration Process.

Phase 1: Problem Classification and Stakeholder Identification
Before developing a management plan, a complete portrait of the environmental, cultural, historical and social-economic characteristics must be prepared, along with a description of the target conservation problem. If possible, this classification should be based on previous technical or scientific studies including clear indicators of support from the local community and the main stakeholders.

Effective management requires an understanding of what measures and actions are needed to sustain the site within its local context (Eurosite, 2005). Therefore, the present and past human usage of the area must be taken into account, as should current and future impacts and the means necessary to achieve optimal usage.

The Plan Manager can thus identify the stakeholders and invite them to participate directly in the development and implementation of the management plan. Potential stakeholders include:

- public regional administration entities responsible for the environment, territorial planning, agriculture, forests, fisheries, construction, road building, education, tourism and culture;
- public local administration (town halls of the villages or towns encompassed within or bordering on the PA);
- research centers;
- farmers, fisheries, local commerce and industrial confederations or associations;
- representatives or associations of landowners (or the landowners themselves) of properties inside or adjacent to the PA;
- local, regional and national environmental and rural development non-governmental organizations (NGOs).

Figure 1. Location of Pico da Vara / Ribeira do Guilherme SPA on S. Miguel Island (Archipelago of the Azores, Portugal)
Phase 2: Characterization
After a meticulous definition of the MP area of intervention to avoid any doubt about the territory in question, the next step is its detailed and systematic biophysical and social-economic characterization. Biophysical variables are generally studied and described individually and then evaluated within an integrated conception of the territory. To ensure the most appropriate and accurate information, all stakeholders will be asked to provide all their relevant geographical and alphanumeric data.

The plan manager will further request from the remote sensing/GIS expert the maximum amount of geographic information (such as facilities, land cover/land use, vegetation, habitats, water resources, shoreline, natural hazards mapping and change detection multi-temporal analysis) from available remote sensing data (archived and recent orthophotomaps, optical multispectral and hyperspectral, Radar and LIDAR). This information will then be integrated into Management Plan GIS for the case-study area. The descriptive process typically takes up to 3 months and produces a document which is sent to all potential stakeholders at least 2 weeks before the first workshop. The following sections may appear:

- General characterization (geographic location and boundaries; protection status; existing instruments of territorial management; terms of land use; infrastructure and public facilities; infrastructure for management support);
- Biophysical characterization (climate, physiography, geomorphology, geology, land cover/land use, landscape, ecology – fauna, flora and habitats);
- Social-economic characterization (demography, resident population, visitor numbers, economic activities, development projects, basic infrastructure).

Phase 3: Initial Stakeholder Workshop: Discussion of Management Plan Vision, Mission and Goals
The Plan Manager leads a one to two day workshop with the time allocation depending on the anticipated levels of conflict resulting from the conservation goal or stakeholder compatibility. The objective is to produce the MP’s vision, mission and general goals.

This first workshop should include: reception of the stakeholder’s representatives and distribution of documentation (brochures, flyers, workshop program etc.); official opening the local public administration together with the management team in the presence of the press; the introduction of all stakeholders and activities designed to increase communication; guided field trip to the Protected Area (PA); presentation of the descriptive document followed by a discussion; elaboration of the Management Plan Vision with all participants; identification of Strengths/Weaknesses/Opportunities/Threats (SWOT) and Problem-Tree Analysis; drawing up the MP mission and general goals as informed by the “Problem-Tree” and SWOT analyses; and, finally, the summary of the results of the initial workshop.

Phase 4: Management Plan Logframe
Based on the vision (Level 0), mission (Level 1) and general goals (Level 2) stated by all stakeholders, the Plan Manager will develop a Logframe- Logical Framework (Gil, 2007). This instrument should indicate all the specific goals (Level 3) necessary to accomplish each general objective, as well as the activities mandatory (Level 4) for each specific goal and establish the specific indicators, monitoring measures, assumptions and the stakeholder responsible for its realization. This phase should not take more than 3 months. Then the Plan Manager will present the Logframe to each stakeholder complemented by one or more field trips to the area of intervention, remaining always open to proposals, changes and comments. In order to ensure maximum support and funding for the MP, he or she should give special attention to those stakeholders able to execute the maximum number and the most expensive activities. The manager will incorporate all stakeholder suggestions into a revised Logframe to be sent to all stakeholders at least two weeks before the second workshop.

Phase 5: Second Workshop for the Presentation, Evaluation and Approval of the Provisional Management Plan
The second workshop should include: opening; progress report on the plan’s development and discussion; field trip to the area of intervention; detailed presentation, evaluation and approval of the MP Logframe.

Phase 6: Specification of Costs and Guaranteeing Financing
After 2 to 4 weeks, the manager will meet individually with representatives of each stakeholder authorized to make political, administrative and financial decisions in order to clarify their specific contributions to the MP. If it is not possible for a stakeholder to finance an activity completely, the manager has to know exactly how much of a shortfall there is so that he/she may search for alternative funding sources (LIFE and Rural Development Support Programs, for instance).

Due to the highly politicized nature of such a MP, the manager must employ all possible arguments for convincing the stakeholders of the urgency of carrying out the plan while highlighting all of its socio-economic benefits (creation of jobs, production of new, more sustainable economic activities, etc.). The Management Plan Budget should ideally be prepared within three months of the second workshop.

Phase 7: Scheduling
The manager subsequently prepares a schedule of each activity, including: designation of the activity; its general goal; its specific goal; means and methods of assessment; stakeholder(s) responsible for its execution; status (“to begin”, “ongoing”, “concluded”); period of execution; estimated costs; funding resources. This allows for the objective and practical supervision and monitoring of the implementation of the MP.

Phase 8: Dissemination of the Management Plan
The final MP should be a relatively concise document comprised of four separate chapters: the PA characterization document; site SWOT Analysis and Problem-Tree; Logframe; and the MP schedule. All chapters should be illustrated with visuals to aid interpretation. A sufficiently large number of copies are printed and distributed to all stakeholders, to libraries, to educational institutions near the area of intervention, to the press and for public consultation.

Finally, to formalize the importance of the MP, a small public ceremony and press conference should be organized with the presence of stakeholders’ representatives. The Management Plan
should subsequently be disseminated on the Internet for general consultation.

**Phase 9: Supervision and Monitoring**
An annual progress report must be issued listing and describing the steps achieved, those underway and those still to be initiated. This report should be written during the annual stakeholders meeting, and complemented by field trips to the area of intervention to evaluate the achieved results and the realized activities. The manager may meet twice a year with each stakeholder responsible or co-responsible for one or more activities to gather the necessary information. The concluded report will be sent to all stakeholders at least 2 weeks before the annual meeting. The final step is the approval of the monitoring report, with all comments, observations and amendments integrated. The final version will be distributed to the stakeholders and will be made available on the Internet.

Managers should utilize instruments of communication such as a constantly updating Web pages or Blog, a WebGIS (a Google Earth, Bing Maps or Yahoo Maps based application, for instance) and/or an electronic newsletters (twice or 3 times a year) in order to encourage public participation in the monitoring process.

**Phase 10: Management Plan Revision and/or Reformulation**
A MP is generally revised and reformulated every five years in regards to: changes in the extension and distribution of the habitat; changes in the occurrence of the key species; conservation achievements; and, finally, an accounting of goals met/not yet met. A Management Plan is a dynamic document and should be revised and updated as necessary, but never unjustly nor prematurely, at the risk of losing credibility.

**RESULTS**

“Pico da Vara / Ribeira do Guilherme” was the first Natura 2000 Site SPA Management Plan to be elaborated and implemented in Portugal. This proposed methodology was applied during this Management Plan Elaboration Process in 2005 (S. Miguel Island, Archipelago of Azores, Portugal) by SPEA (Birdlife in Portugal) on the behalf of the LIFE Priolo Project’s Action 1 (Gil, 2005). Twenty-three stakeholders (public, private and non-governmental institutions at international, national, regional and local levels) participated in the development process between October 2004 and July 2005 (approximately 10 months): Nordeste and Povoação City Councils; Regional Secretaries of the Environment, Public Construction and Transportation, Economy, Agriculture and Forestry; Regional Directories of Education, the Environment, Forestry, Rural Development, Land Planning and Water Resources Tourism, Transportations; University of the Azores Research Centres for Land-use Planning and Environmental Conservation and Protection; University of Coimbra Department of Zoology; the Azores Regional Agency for Energy and the Environment; “Amigos dos Açores”, SPEA, RSPB, Quercus Environmental NGOs; S. Miguel associations of land owners, farmers and young farmers; ASDEPR, “Terra Mar” and “Norte Crescente” rural and local development associations.

Stakeholders decided that the overall mission of the Management Plan would be “Encouraging the Commitment of the Inhabitants of the Pico da Vara / Ribeira do Guilherme SPA to a sustainable future, ensuring the preservation of Priolo.” Six general goals were selected as a foundation for the entire Management Plan:

- To ensure a sustainable SPA management structure;
- To ensure the creation of legislation capable of supporting the preservation of this species and its habitat;
- To increase the area of Priolo habitat through site restoration;
- To increase the support for and participation of local people and visitors in Priolo’s conservation;
- To promote new sustainable economic opportunities for the local population based on the existence and protection of Priolo;
- To increase the scientific research on the domains related to Priolo conservation.

An overall budget of 3.397 million euros was deployed from 2005 to 2010 to carry out the 58 Management Plan operational tasks (Gil, 2005), 58.4% (1.984 million euros) funded by the European Commission through LIFE+ (1.944 million euros) and Leader (40 thousand euros) programs, and 41.6% (1.413 million euros) funded by regional and international stakeholders. About 80% of the scheduled activities were successfully achieved. The most important and strategic activities were carried out: triplication of SPA area; integration of SPA in the Azores Regional Protected Areas Network; construction and implementation of the Priolo’s Visitors Centre (240 thousand euros); restoration of 230 hectares of native forest; annual Priolo’s Census; local and international volunteering program development.

**DISCUSSION OF RESULTS**
The only substantive difference between the proposed methodology and that implemented by SPEA in 2005 was the chronological order of Phases 6 and 8. In 2005, the publication and presentation of the SPEA’s Management Plan to the public and media occurred before specifying costs and guaranteeing financing for the MP’s implementation. The SPEA’s MP was successful in unifying the divergent (and even previously considered incompatible) interests of public and private organizations by involving them in the plan’s development. This success proved that Natura 2000 Site management can be effective when resulting from the participation and co-responsibility of all stakeholders in the project. However, the plan was not as successful in achieving full funding due to the inverted chronological order of the Phases. Phase 8, “Publication and Presentation of the Management Plan to the Public,” preceded that of Phase 6, “Specification of Activities Costs and the Guarantee of Financing for Full Management Plan Implementation”). Therefore, following the positive benefits of the huge and positive media impact (local TV, radios and newspapers) accruing from their participation in the MP, some of the most powerful stakeholders (whose participation was crucial for full-financing of the project) failed to live up to their commitments of political and financial support. They did not incorporate many of the MP’s activities into their own annual work schedules.

As a result the MP was more expensive, more external funding dependent and less effective than it might have been. This subtle but decisive political and chronological methodological difference had a significantly negative impact on the Plan’s full implementation.

Stakeholder feedback was crucial for assessing the project. Fourteen of the 23 stakeholders accepted our invitation to complete a questionnaire regarding the “Pico da Vara / Ribeira do
Guilherme” SPA Management Plan (Gil, 2007) just after it was published (July 2005). Eleven of these 14 stakeholders were participating in this kind of process (PA Management Plan Elaboration) for the first time. The most interesting results of this survey were:

- All 14 stakeholders found that the exhaustive GIS and Remote Sensing based characterization of the SPA was fundamental for the full understanding of the conservation issues and for successful stakeholder involvement during the elaboration of the Plan;
- On a qualitative scale ranging from: “very bad” to “very good” 11 stakeholders evaluated the whole process and its dynamics as “very good” and 3 as “good”;  
- Twelve stakeholders indicated that participative management is the key for nature conservation success, while one stated that it might be advantageous but not decisive, and the last one found it not at all advantageous when compared to standard “top-down” management processes;
- Six stakeholders predicted full success (100% achievement) of the plan’s scheduled activities, while 7 anticipated satisfactory achievement (more than 75% of total activities successfully completed). Finally, one stakeholder doubted that the Management Plan would achieve even 50% of the scheduled activities.

CONCLUSIONS

Standard land planning instruments have failed to adequately promote the active management and conservation of Natura 2000 sites in the Archipelago of the Azores. The fact that most of the Natura 2000 sites are located either in private domains or public areas with multiple guardianships requires delicate negotiation with each public and private landowner in order to achieve the conservation goals. A further challenge comes from the shortfall of funding available for direct Natura 2000 protection, vis à vis the diagnosed needs. These tremendous challenges demand the highest possible levels of strategy, planning and activity programming. They further necessitate that managers proceed with the utmost transparency and rigor while sharing the responsibility of management in the search for the optimal utilization of human, technical, technological and financial resources of each of the stakeholders.

The characterization of the site must be thorough, comprehensive and systematic, paying special attention to variables that cause, influence or define the conservation issues within the case-study area. Therefore, all the existing biophysical and socio-economic geographic and alphanumeric information should be integrated, overlaid and analysed holistically, through geoprocessing and spatial analysis, in order to support effective, integrated and realistic site planning and management. It is therefore mandatory that the stakeholders produce, integrate and share good quality GIS and Remote Sensing data.

The participation and co-responsibility of all stakeholders at each site should form the cornerstone of effective and successful Natura 2000 conservation. The entities involved in the Management Plan should be characterized by the heterogeneity of domains, functions and interests. Special attention should always be given to partners with more political influence and economic power, since from the outset they will be the potential co-financers and co-executors of the plan. To ensure the cheapest, most “external funding independent” and most successfully implemented plan, stakeholders should incorporate actions they have committed to as part of their regular annual schedule. Due to the highly political nature of the process, stakeholders should be always represented by participants with the authority to make political, administrative and financial decisions. In order to foster public awareness and support for the Plan, the public must be maintained informed throughout the process by means of the dissemination of all documents, public participation tools (website, web GIS, newsletters, mailing lists) and materials produced. Beyond any technical issue, the plan manager and his/her staff should always bear in mind that without the support of the local population, any attempt to propose, create and implement a management plan will be a wasted effort.

LITERATURE CITED


ACKNOWLEDGEMENTS

This research has been developed on the behalf of a Doctoral Research Project led by the first author, who was also the Plan Manager of the Pico da Vara/Ribeira do Guilherme SPA MP. The main goal of his research is to assess the effectiveness of processing and integrating GIS and remote sensing data in the framework of Small Islands’ Natural Resources Planning and Management instruments. This Ph.D. Research Project (M3.1.2/F/025/2007) is supported by the Azorean Regional Secretary of Science, Technology and Equipment. We would like to thank the staff of SPEA/LIFE Priolo Project as well as all the 23 local, regional and international stakeholders. We would like to acknowledge the comments and suggestions of Professor Paulo Talhadas dos Santos (Faculty of Sciences, University of Porto).