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Training curriculum for protected area management planning

Twinning Project MK 13 IPA EN 02 17

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Content

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1. DOCUMENT OVERVIEW

1.1 Purpose

The purpose of the Training Curriculum is to describe the framework for management planning of future Natura 2000 sites, as well as to provide a set of training materials. These are to be used both in the training event arranged by the Twinning Project, and in course of future training events and stakeholder involvement occasions led by the Ministry of Environment and Physical Planning (MoEPP) or by another competent body in the field of nature conservation.

1.2 Target groups

The target groups for management planning training activities include:

- Personnel of the Ministry of Environment and Physical Planning
- (Future) personnel of other organizations working in nature conservation administration
- Personnel of protected areas (national parks Pelister, Mavrovo and Galicica, natural monument Prespa Lake and other administrative bodies)
- Scientific community and research organizations working in the field of biodiversity
- Personnel of public administrations with activities in or around protected areas (eg. Agency for Pastures, Ministry of Agriculture, Forestry and Water Economy, PE Macedonian Forests, Border Guard and Defense Forces if operating on PAs)
- Personnel of municipal administration in municipalities where protected areas are located
- Organizations and entrepreneurs developing tourism in and around of protected areas
- Protected area stakeholders, such as NGOs and local interest groups, private entrepreneurs and local residents

1.3 Scope and objectives of the Training Curriculum

The Scope of the Training Curriculum is to provide a clear understanding of what is the framework for management planning of future Natura 2000 sites, what are the basic principles for preparing management plans for Natura 2000 sites and other PAs, and what kind of activities need to take place to meet the requirements for PA management set in the EU Habitat Directive. The same approach and methodology can be utilized also in management planning of national protected areas and their biodiversity values, and the linkage of the EU Natura 2000 requirements to those set in the national legislation for PA management planning should be discussed in the training events.

Explicit objectives for the Training Curriculum are:

- To enhance knowledge on the requirements set in EU Habitat Directive for Natura 2000 site management both in administrative organizations and within stakeholders of PAs

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- To build capacity within MoEPP and the PA administrations to carry out management planning of PAs through Open Approach administrative processes
- To raise awareness and increase acceptance of nature conservation and Natura 2000 site values among stakeholders of PAs
- To allow for development of the current management planning methods used in the Republic of North Macedonia
- To fulfill the requirements of future EU legislation regarding management planning activities of PAs

Activities related to other aspects of capacity building of the staff of MoEPP and other entities working in the field of nature conservation fall outside the scope of this training curriculum.

1.4 Assumptions, dependencies and risks

The following assumptions apply to the Training Plan:

- The ascension negotiations with the EU will proceed and thereby the EU legislation including Habitat and Bird Directives will be implemented in future in the Republic of North Macedonia
- The MoEPP is thus far the responsible organization for nature conservation and for preparations for meeting the future requirements of the EU Habitat and Bird Directives
- Management planning is carried out by the staff of the PAs together with the stakeholders by using Open Approach to planning and other related work

Successful training is dependent on the availability of, and might be risked through lack of:

- Available staff resources within MoEPP and the PA administrative organizations
- Increased biological and legal (EU directives) knowledge of MoEPP and PA administrative staff
- Commitment of the administrative, research and other organizations as well as stakeholders towards the interactive planning process and goals of management planning

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2. TRAINING NEEDS ASSESSMENT

The main training needs considering management planning of PAs in the Republic of North Macedonia are concerned on recognizing and realizing the requirements set for Natura 2000 site management and management planning in the EU Habitat Directive. Although management planning has long been standard practice of PA administration, the process should be developed towards more Open Approach between the administrative institutions and stakeholders, and the scope and content of the plans should be revised. Instead of extensive, all-encompassing presentations, the plans should have a more direct focus on main management objectives and activities within the PA, with action plans feasible both from resource and competence perspective. Also, recent developments in general PA management planning methodology encouraged by international initiatives and organizations, such as IUCN or Europarc, are worth exploring.

2.1 Management planning of Natura 2000 sites

EU Habitat Directive has no direct requirements for management plans of Natura 2000 sites. However, the baseline of the plans needs to be the species and the habitats present on the site protected by the Habitat and Bird Directives, and their ecological requirements and current and desirable conservation status. Therefore, the PA administrative institutions' personnel together with the stakeholders need training on how to recognize and define Natura 2000 values on PAs, how to address their conservation status and estimate threats facing it, as well as how to plan and perform management activities for their conservation. Also the obligation of actively increasing the nature values of Natura 2000 sites should be recognized and realized in planning the management activities.

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3. TRAINING APPROACH

3.1 Training Methods

Main approach to training on management planning will be interactive workshops, that will include lessons, discussions and problem-solving on themes presented by the lecturers and the participants. Field trips are strongly recommended to demonstrate the status of protected area and to discuss practical management questions on the spot. Also, demonstrations on management activities can be presented.

3.2 Training Infrastructure

To arrange a workshop, a seminar room equipped with a video projector is needed. If possible, the room should be spacious enough to allow for discussions also in several smaller groups, if the number of the participants is suitable for this kind of approach (eg. > 12). The participants should be provided with the training materials either beforehand or at the least after the training event.

For field trips, the venue/s should be selected so that the desired management aspects and questions can be demonstrated. Participants should be notified beforehand of the field trip and given instructions on the necessary preparations and equipment (eg. suitable clothes and boots, backpacks etc.). Transportation should be provided, as well as refreshments. Depending on the venue and participants, the length of the field trip should be planned so that topics relevant to the training can be covered. The participants' aptitude for field conditions should also be taken notice.

3.3 Modules of the training

The contents of the training events are divided into three modules:

1 Background and requirements for management plans of Natura 2000 sites

2 Contents of the plan

3 Field demonstrations

Of these, the materials related to modules 1-2 are presented in chapter 5 of this report, and a still more comprehensive demonstration of the contents of the plan is annexed. Module 3 should be planned on a case-by-case method in forthcoming training events, based on preconditions set in this report.

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4. TRAINING ROLES AND RESPONSIBILITIES

The following roles and responsibilities are valid for management planning training events. However, the exact roles depend on the focus and agenda of the training, and not all the following need to be present in every training occasion.

Training lead. The person in lead of the training event is responsible for the overall performance of the event, both regarding the subject matters and practical arrangements, such as transport and equipment. The training lead can delegate part of her responsibilities to other training staff members. The most important tasks that should not be delegated are acting as the host(ess) of the event, welcoming the participants and keeping all participants along during the training and discussions, as well as looking after the schedule and seeing that the planned components in the training program are carried out in due time. If open questions remain after the lectures and discussions, the training lead should collect them and search for answers after the training, and then deliver these to the participants.

Lecturer/s. Lecturers are responsible of presentations and of leading workshops and discussions as agreed beforehand when planning the training curriculum. They should prepare their materials in good advance so that they can be disseminated to the participants in the training event, or the very latest right after the event. Together with the training lead, the lecturers should prepare themselves for the training event by getting acquainted with the PAs, organizations and stakeholder groups the participants represent.

Field trip leader/s. Field trip leaders can be either representatives of the training team or of the PA administration, or stakeholders possessing relevant information regarding PA management planning, eg. of management challenges in a certain PA. Field trip leaders should together with the training lead plan the trips so that they can be carried out in due time, taking into account whether conditions, participants' capabilities to field activities and the characteristics of the site (eg. infrastructure or lack of it, vegetation, elevation and other aspects effecting on how easy or hard it is to proceed in the site). Selection of demonstration sites is of utmost importance regarding successful performance of field trips and should be done so that the desired management challenges and issues can be demonstrated and discussed. Special attention should be put on that all participants are able to see and hear the demonstrations and to participate in the discussions, so the locations for these should be selected carefully.

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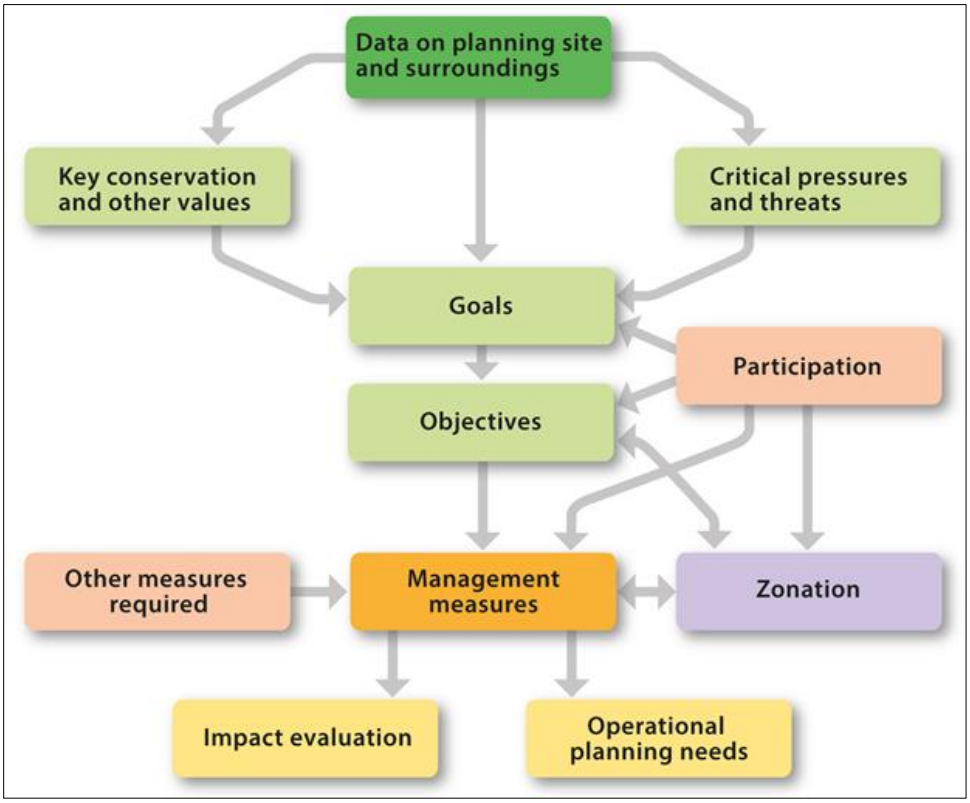
5. TRAINING MATERIALS AND & CURRICULUM

5.1 Requirement for management plans for Natura 2000 sites

Basic content of PA management plans can be formulated as follows:

- general description of the target site including location and maps
- information about natural and cultural heritage
- information on former and current uses of the area
- values of the site and threats facing them
- management goals and objectives
- management activities
- possible zonation
- environmental impact evaluation of the plan
- presentation of operational planning needs
- monitoring of the planned activities and their effects

The planning process is presented in picture 1 by Parks & Wildlife Finland.



Picture 1. Management planning process (source: Parks & Wildlife Finland).

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This is a valid approach for management planning of Natura 2000 sites, too. However, it should be stressed that the focus should be in recognition and protection of the habitats and species protected under the regimes set by the Habitat and Bird Directives. Also, the environmental evaluation part of management plan for Natura 2000 site might differ from the traditional approach, because the requirements set in Habitat Directive's Article 6(3) for Appropriate Assessment of plans and projects should be met.

As part of management plans, zoning of the PA is usually presented. The scope and effects of zoning may vary depending on the regulations targeting and characteristics of the site, as well as the planning system adopted by the PA management. Within the context of Natura 2000 site management, an important remark is that activities in the PA cannot be regulated by zoning of the PA but need to be based on decisions resting on information and locations of the valuable habitats and species. Therefore, instead of traditional zoning approach used in Macedonian PAs, activities in future Natura 2000 site should be regulated in respect to habitats and their characteristics as well as species occurrences, if necessary. That, together with streamlining of the contents and scope of management plans towards meeting the other habitat directive requirements, is one of the main topics of training on management planning.

5.2 Contents of a management plan

The content of a management plan should follow the model presented below:

Foreword
1. Introduction
1.1. Name of Natura 2000 site (or potential site), its legal base, administrative status
1.2. Entity conducting the Management Plan and period of preparation of the Plan
2. Description of the area
2.1. General information
2.2. Ecological information related to the Habitats and the Birds Directives
2.2.1. Ecosystems and habitats
2.2.2. Flora
Species under Habitats Directive (Natura 2000 species)
Invasive plant species, invasive water plant species
2.2.3. Fauna
Species under Habitats Directive (Natura 2000 species)
Other vertebrates and invertebrates, bats, fish species, other invertebrates, insects, invasive insects
2.2.4. Birds
3. Assessment of values
3.1. Values of the area
3.1.1. Natural values and importance in EU context
3.2. Threats and pressures
3.2.1. Threats and pressures to … ecosystems and depending fauna species

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A description of the chapters of management plan is provided below.

1. Introduction

1.1. Name of Natura 2000 site, its legal base, administrative status

Name of Natura 2000 site (potential Natura 2000 site). Information on legal acts for establishment of national protected area (later on proclamation of Natura 2000 site), size of the area. *Scheme of borders* of protected area to be added. *Responsible institution* of protected area management listed.

International designations and initiatives: Ramsar area, Important Bird Area (IBA) area, Important Plant Area, Emerald site, etc. Dates of proclamation of these areas, initiatives + size of the areas should be written.

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Transboundary designations and initiatives: such like transboundary protected areas (biosphere reserves, national parks), protected regions, Green Belt, etc. Dates of proclamation of these areas, initiatives + size of the areas should be written.

1.2. Entity conducting the Management Plan and period of preparation Plan

Brief information, list of institutions (names), local experts (names) preparing the Management Plan.

2. Description of the area

2.1. General information

Brief information on:

location of Natura 2000 (potential) site in country, in natural geographical unit. Geographical coordinates, bordering units, other important information, administrative units.

2.2. Ecological information related to the Habitats and the Birds Directives

General information on data on habitats and species of European Community Importance (protected under Habitats and Birds Directives). This chapter has strong link to Standard Data Form, which is an Annex for the plan. The information contains e.g. when data was collected, what methods were used: field investigations, collection and checking of scientific records, articles, existing planning documents: valorization studies, management plans, spatial plans, etc., information on protected area administration, etc.

2.2.1. Ecosystems and habitats

Describe all habitat types listed in the Annexes of the EU Habitats Directive which are found in the area and its surroundings. The list of identified habitats (codes of habitats to be mentioned) and brief information about them (areas in which habitats were found, which species are common to them, etc. characteristic features). Habitat map would be very useful, if it is possible to present.

2.2.2. Flora

Information on flora species protected by Habitats Directive (Annexes to be mentioned): total number of species found in the area and the list of them. Information on other important species, especially national endemic and the species which need special management measures.

Information on invasive terrestrial and / or water plant species as they are important for management of the area (list, explanation) to be added.

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2.2.3. Fauna

Information on fauna species protected by Habitats Directive (Annexes to be mentioned): total number of species found in the area, the list of them.

Information on other vertebrates and invertebrates (bats, fish species, insects, etc.) to be added. As well as the information on relevant invasive species to be mentioned.

2.2.4. Birds

Breeding, wintering, migrating bird species: total number of species found in the area, the list of bird species of European Community Importance, brief information on them.

3. Assessment of values

3.1. Values of the area

3.1.1. Natural values and importance in EU context

Nature values might be evaluated in European Community Importance context. Information on number of habitats and number of species protected by Annexes of the Habitats Directive and number of bird species protected by the Birds Directive should be written. The information on endemic species of European Community interest to be mentioned.

To use summary and ecosystems approach is recommended. It helps to identify key ecosystems, consequently to define common goal, objectives and measures. All habitats found in the site would be grouped according identified ecosystems, and the species information should be linked to the ecosystems.

Assessment of the conservation status of ecosystem (component of ecosystems) presenting of existing situation and giving future prospect (deteriorate, stable, improve).

Grouping of key nature values (particularly habitats) in the key ecosystem types helps for proposing of common objectives and management measures/principles. Particularly it is very helpful if real habitat mapping has not been implemented.

3.2. Threats and pressures

Threats to protected habitat types and species might be identified within and outside of Natura 2000 site (potential). Classificaton Standard Data Form (SDF) for Natura 2000 sites should be used. This one can be found in Reference Portal for Natura 2000 (http://cdr.eionet.europa.eu/help/natura2000).

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3.2.1.(n) Threats and pressures to … (the first.. of identified) ecosystem and depending fauna species

Threats and pressures might be presented for each of identified key ecosystem and nature values (concrete habitats and species might be listed at the beginning).

The list of identified threats and pressures (codes to be mentioned: e.g. A07, A08, F02.01.02, etc.) with the score (low, medium, high).

The major threats and their consequences should be explained.

3.3. Management effectiveness and competences

Management Effectiveness Tracking Tool (METT) is one of the two most widely used/adapted globally applicable generic systems developed to assess protected area management effectiveness. The methodology of a rapid assessment is based on a scorecard questionnaire. The scorecard includes all six elements of the management identified in the IUCN-WCPA framework (context, planning, inputs, process, outputs and outcomes), but has an emphasis on context, planning, inputs and processes. It is basic and simple to use, and provides a mechanism for monitoring progress towards more effective management over time. It is used to enable protected area (PA) managers and donors to identify needs, constraints and priority actions to improve the effectiveness of protected area management.

Total score should be counted, and it is possible to be compared with the results of earlier evaluations, if available.

4. Strategy

This is the most important part based on ecological information, on nature values investigation and evaluation of values and threats. There should be summary statement on the importance and key values of the area.

4.1. Common Vision for the future of the Natura 2000 site (potential)

Common Vision demonstrates what are we going to achieve in Natura 2000 site management and creates common understanding for all actors in the area.

It is recommended to have one general (summary) statement and additionally more detailed explanations for biodiversity, visitors, local communities and protected area administration. Other parts for more detail explanation could be added if needed.

4.2. Mission of responsible administrative institution and other involved institutions

Mission of responsible protected area administration to be formulated. Other institutions might know what are expectation for they activities in Natura 2000 site.

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4.3. Protection and management goals and objectives

Having a common vision for Natura 2000 site it is easy to write goal and objectives for 10 years (also other period could be used). Objectives should be related to selected key ecosystems. It helps to target measures and use more efficiently all resources (financial, human, time, etc.) for protection of nature values.

4.4. Prerequisites necessary for protection of biodiversity – nature values of European Community Importance

Prerequisites (conditions) are necessary for efficient management of the area in order to achieve the Vision and the management goals and objectives. They are important elements mainly to the administration in charge to be able to implement practical management measures identified in the document. Some of prerequisites can be seen as functions of PA administration. Prerequisites help to identify additional management measures if needed for management of Natura 2000 site. The most important prerequisites are related with available funding sources, collection of data necessary for management of the site, involvement of different stakeholders, possibilities to diminish negative impact for nature values, law enforcement, etc.

4.5. Proposals on borders and zones of Natura 2000 site (potential)

Proposals for Natura 2000 site borders and zones might be related with the location of habitats and species of European Community Importance. If valuable habitats or species are outside of existing protected area, it could be proposed to enlarge size of protected area or to have larger Natura 2000 site than existing national protected area. The same can be said for zones of protected area. Just needed to mention, that zonation is not necessary for Natura 2000 site.

5. Management of the area (Management Plan)

5.1. Management principles and recommendations

Management principles are general guidelines for management of the habitats and species and their values in order to achieve favorable conservation status for them. It is the main principle way to achieve the objectives and goals set to the values. Some habitats and species do not need any management intervention, some of them need active and continuous management, in some cases restoration of damaged areas is required. Management principles vary for different values (habitats, species). Practical management measures presented in the plan should be based on management principles. Understanding of management principles helps to PA administration to implement management plan and its recommendations.

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Management principles should be grouped according selected ecosystems, but in some cases special principles can be presented for a specific habitat or species. If three key ecosystems were selected, three groups of management principles should be proposed.

5.2. Management objectives and corresponding measures

Present, which concrete measures are necessary for achieving the goal and selected objectives. Protected area administration and other involved institutions should know what concrete actions are be done in Natura 2000 site. It is not necessary to formulate too many measures. Just the most important to be proposed and implemented.

5.3. Specification of proposed measures (sub-measures) and indicators (according table above)

5.3.1. – 5.3.(n). … explanation of proposed specific concrete measures

Proposed measures and sub-measures if needed should be explained in general way including indicators. If there are guidebooks or other references for detailed description of actions, they should be mentioned. In many cases a action plan is required for finally defining practical measures and needed resources in specific site location. Sometimes it is necessary to describe the process of implementation for specific measures (for example reed management).

5.3.n+1. The other important measures to be implemented

Other general important measures can be proposed in the management plan.

Table showing priority actions, implementing institutions and time table for implementation of proposed management measures should be compiled.

6. Environmental impact evaluation of the plan

Short analysis on the impact of the plan, especially that the plan is in accordance of the requirements of Habitat and Bird Directives.

Annexes

Annex 1. Standard data forms

Annex 2. Lists of species and habitats

Annex 3. Map of habitats

Annex 4. Results of METT analysis

Annex 5. List of literature

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Any other useful annexes can be added

References

Previous projects, management plans, spatial plans, legal documents used for preparation of the Management Plan to be mentioned

Any other references used for the work to be mentioned

5.3. Field demonstrations

Field trip should be always essential part of the training. Main habitats presenting key values of the potential Natura 2000 site should be visited. In discussions main themes are identifying of habitat type and its conservation status. Management principles and practical management measures should be demonstrated in the spot. Also inventory and monitoring methodology can be presented and discussed during the field visit. Further the role of different actors in implementing measures is an important topic.

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6. TRAINING EVALUATION AND FEEDBACK

The success of the training will be evaluated through standardized collection of feedback, either via a standard document form or via suitable software application. At the course/end of workshops and field trips, also informal feedback discussions are encouraged.

Annex 1. Demonstration of the contents of the management plan from Prespa Lake Nature Monument (potential Natura 2000 site)

1. Introduction

1.1. Name of Natura 2000 (potential) site, its legal base, administrative status

Name of Natura 2000 site (potential Natura 2000 site). Information on legal acts for establishment of national protected area (later on proclamation of Natura 2000 site), size of the area. ***Scheme of borders*** of protected area to be added. ***Responsible institution*** of protected area listed.

International designations and initiatives: Ramsar area, Important Bird Area (IBA) area, Important Plant Area, Emerald site, etc. Dates of proclamation of these areas, initiatives + size of the areas might be written.

Transboundary designations and initiatives: such like transboundary protected areas (biosphere reserves, national parks), protected regions, Green Belt, etc. Dates of proclamation of these areas, initiatives + size of the areas might be written.

Example. Scheme of borders of potential Natura 2000 site. Different additional information could be added

1.2. Entity conducting the Management Plan and period of preparation Plan

Brief information, list of institutions (names), local experts (names) preparing the Management Plan.

2. Description of the area

2.1. General information

Brief information on:

- location of Natura 2000 (potential) site in country, in natural geographical unit. Geographical coordinates, bordering units, other important information.
- administrative units

2.2. Ecological information related to the Habitats and the Birds Directives

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General information on data on habitats and species of European Community Importance (protected under Habitats and Birds Directives). When the data was collected, what methods were used (field investigations, collection and checking of scientific records, articles, existing planning documents: valorization studies, management plans, spatial plans, etc., of information on protected area administration, etc.)

Example. *The data presented in this chapter is mainly based on the inventories carried out by the Twinning project team in the summer 2018 and inventor of data provided by MoEPP. National experts have participated also in the field work and gave comments to the evaluation of the inventory data. Additionally, they have provided their own data for the Annex especially on habitat types and vascular plants, as well as on reptiles and amphibians in frame of EU/UNDP project for Improvement of management of Protected Areas. The importance of PONT/MES project for identifying habitats in the area is worth of highlighting (Fotiadis et al. 2018). In addition, recent literature on bat inventories have been used in this chapter.*

2.2.1. Ecosystems and habitats

How many habitat types listed in the Annexes of the EU Habitats Directive were found in the area and its surroundings. The list of identifed habitats (codes of habitats to be mentioned) and brief information about them (areas in which habitats were found, which species are common to them, etc.). Scheme of habitats would be very helpful.

Example. *Totally **12 habitat types** listed in the Annex I of the EU Habitats Directive were determined in the area of Prespa Lake NM and its surroundings (around Konjsko and Stenje at the western lake shores and around Asamati, Pretor, Krani, Štrbovo and Nakolec till the boarder with Greece at the eastern lake shores till the road Greece – Resen).*

The list of found habitats presented.

Example. Scheme of habitats of Prespa Lake NM and Ezerani Nature Park

2.2.2. Flora

Information on flora species protected by Habitats Directive (Annexes to be mentioned): total number of species found in the area, the list of them.

Example. ***Two plant species*** *from Prespa Lake are included into Habitats Directive Annex II or IV plant lists. Fresh observations are available on Aldrovanda vesiculosa; meanwhile Lindernia procumbens is met over 100 year ago and present situation is unknown. There are also several other vascular plants species in Prespa area those are also nationally rare and protected by Nature Conservation Act. These include: Nymphaea alba, Beckmannia eruciformis, Glyceria maxima, Rumex hydrolapatum and Salvinia natans.*

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The list of species with breaf information:

*1. Water Wheel Plant Aldrovanda vesiculosa. Habitats Directive, Annex II and IV, species code **1516.** The waterwheel plant is rootless carnivorous water plant that typically floats freely at shallow fresh water. Aldrovanda vesiculosa is classified as Endangered (EN) by IUCN in the whole world (Cross 2012). During last centuries it has become extinct from 32 countries worldwide. In Prespa Lake NM recent observations include Sirhan and Nakolec surroundings. Eutrophication and too dense reedbeds can be a problem for the species through water chemistry and shading. Eutrophication can enhance also competition e. g. by algae and floating vascular plants. Also ditching, decreasing water table and overgrowth threats this species.*

*2. Prostrate False Pimpernel Lindernia procumbens. Lindernia procumbens (Krock.) Philcox is a Habitats Directive Annex IV species: code **1725**; classified as least concern (LC) at global, European and EU level, that has grown at shores of Prespa Lake over 100 years ago. Because there is no present observation on this species despite of several visits of botanists it might be considered to be extinct. The species is inhabitant of open wet nutrient rich soil. It can grow at alluvial shores of lakes, river banks and ponds. It can also be met from different kind of human made artificial seasonally wet environments including fish ponds and agricultural fields. It is a short-living annual low growing species that needs disturbed environment like grazed shores. This type of habitat has decreased at Prespa area, and also other species those need open wet alluvial soil are nowadays rare and still decreasing in the area.*

Invasive plant species at Prespa Lake

Information on invasive terrestrial and / or water plant species as they are important for management of the area (list, explanation) to be added.

Example. List of invasive species:

False-acacia *Robinia pseudacacia.* False-acacia (*Robinia pseudacacia*) is the most common and spreading invasive tree species in Macedonia. *Robinia pseudacacia* is also most common and harmful invasive species at terrestrial shorelines of Prespa Lake by causing overgrowth at open habitats and replacing native species. It is very abundant and continuously spreading especially at western shores of Prespa. For example lake shoreline between Ezerani and Oteshevo is full of this species. All stands inside border of Prespa Lake NM should be removed.

Desert false indigo *Amorpha fruticosa.* *Amorpha fruticosa* is a bush that can form dense stands. It is from North America and used in ornamental, melliferous and erosion control purposes. Like *Robinia* it belongs to Pea family and through nitrogen fixation it can colonize nutrient poor soils and increase nitrogen and eutrophication in growing sites. *Amorpha fruticosa* is locally common in Resen and it has invaded in Ezerani Nature Park. It can be a problem in future also at other parts of Prespa including Prespa Lake NM. All individuals inside protected areas should be eradicated.

Tree-of-heaven *Ailanthus altissima.* *Ailanthus altissima* is a tree of East Asian origin and used in ornamental purposes. In Prespa Lake NM Tree-of-heaven is spreading at corner of protected area in Sirhan where is a small spreading stand in two nearby location.

Ashleaf maple *Acer negundo.* *Acer negundo* is tree from America that is introduced mainly for ornamental purposes into Europe. In Prespa Lake NM *Acer negundo* is met with scattered trees (mainly young) especially along west shoreline.

Example. The list of invasive water plant species:

Elodea canadensis – Canadian waterweed is a submerged aquatic plant from North America. Introduction of *Elodea canadensis* into European watercourses has caused severe problems already over a century. This perennial species has been met at Prespa Lake first time in 2018 (Fotiadis et al. 2018). Expansion of population of *Elodea canadensis* can increase eutrophication and change composition of current vegetation in Prespa Lake.

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Water fern *Azolla filiculoides* Strid et al. (2017) reports *Azolla filiculoides* Lam. in southern Greek part of Prespa lake from several sites. This species is found in Nakolec wetlands at shore of Prespa Lake. It is listed in EPPO Observation List of invasive alien plants. This aquatic fern forms floating mats at shallow water. It can compete with *Salvinia natans* that has similar ecology and grows naturally at Prespa Lake. It can also compete with the Habitats Directive species *Aldrovanda vesiculosa* that grows in similar habitats partly floating and partly submerged. Extensive mats of Azolla can shadow all submerged plants.

Other invasive herbs. There are several invasive herbs at Prespa Lake NM. Perhaps most common is annual Beggarticks *Bidens frondosa* that grows along reedbeds and by rivers and ditches abundantly over the area. It can compete with local species including protected *Beckmannia eruciformis* grass. There are scattered observations on Tall Fleabane *Erigeron annuus* that is met e. g. close Nakolec. Yellow Dodder *Cuscuta campestris* has met in Nakolec and Asamati. Rough cocklebur *Xanthium strumarium* and Italian Cocklebur *Xanthium italicum* are common at shorelines, mainly in open or ruderal places. Also other ruderal annual weeds (*Erigeron spp., Amaranthus ssp., Xanthium spinosum, Phytolacca dioica, Dasyphania ambrosioides, Disphania multifida,* etc.) with invasive characters are met but these species does not seem to form severe threat to natural habitats.

2.2.3. Fauna

Information on fauna species protected by Habitats Directive (Annexes to be mentioned): total number of species found in the area, the list of them.

Example. Totally **14 fauna species (other than birds)** of the Habitats Directive Annexes II and IV have been identified during the inventories in 2018 by Twinning project. The list:

1. European Tree Frog *(Hyla arborea).* Habitats Directive, Annex IV, species code **1203.** The species lives usually at the sides of wetlands. Adult individuals can be found in higher vegetation and apart of pools.

2. Herman's Tortoise *(Testudo hermanni).* Habitats Directive, Annex II and IV, species code **1217.** Herman's tortoise lives in many types of natural habitats like different types of meadows, forests and bush lands. There is a viable population present in the area. Especially shorelines at Prespa NM at Sir Han – Oteshevo host dense viable population of the species. It is also abundant at Golem Grad island.

Etc. …

Information on other vertebrates and invertebrates (bats, fish species, insects, etc.) to be added. As well as the information on invasive species to be mentioned.

Example. In addition to above mentioned species there are observations of the European Green Toad *Bufo viridis* (syn. *Bufodes viridis*) (Habitats Directive, Annex IV, species code **1201**) and the Eastern Spadefoot (or Syrian Spadefoot) *Pelobates syriacus* (Habitats Directive, Annex IV, species code **1200**), latter from surroundings of Novo Perovo and Asamati as well as near the Prespa Lake (ECE 2013). The site of Ezerani is designated as one of the five most important sites for the species in Macedonia (ECE 2013). These two toad species were not met in 2018 by Twinning project, which refers that they can be rather rare, but probably both still exists in the area. While being night active these species are not easy (or possible) to detect at day time. According to information by UNDP Dragan Arsovski (pers. com) the most recent data for European green toad from the area come from Oteshevo (2010) and Stenje (2014). Both species are present also at Greek part of Prespa Lakes (Bousbouras & Ioannidis 1997).

Etc. …

2.2.4. Birds

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Breeding, wintering, migrating bird species: total number of species found in the area, the list of bird species of European Community Importance, brief information on them.

Example. The Prespa Lake is an internationally important area for wintering and migrating waterfowls. The total number of waterbirds wintering at Prespa Lake (the Republic of North Macedonia) has comprised nearly 15,000 individuals in the 2010s. The breeding birds are also valuable including e. g. colonies of Great Crested Grebe (*Podiceps cristatus*) and Coot (*Fulica atra*). The most numerous breeding bird species is the Great Cormorant with nearly 3,000 pairs at Golem Grad island.

The main information on the birds is based on round count inventory in Prespa Lake on 18.04.2018. During implementation of Twinning project totally 22 bird species were observed, of which **11** are listed in the Birds Directive Annex I and **2** listed in the Birds Directive Annex II:

1. Pygmy Cormorant *(Microcarbo pygmaeus).* The species favour reedbeds with willow (*Salix)* trees as a nesting habitat. Outside the breeding season inhabits wide variety of waterbodies. Partially migratory. Not breeding at Prespa Lake NM.

2. Dalmatian Pelican *(Pelecanus crispus).* The species favours small islands in freshwater lakes or dense aquatic vegetation as breeding habitats, mainly at inland freshwater wetlands. Large lakes are important stop-over sites on migration. Dispersive. Hundreds of individuals are observed annually at Prespa Lake, dispersing from breeding grounds in Greece, Lesser Prespa Lake.

3. Etc. ...

3. Assessment of values

3.1. Values of the area

3.1.1. Natural values and importance in EU context

Nature values might be evaluated in European Community Importance context. Information on number of habitats and number of species protected by Annexes of the Habitats Directive and number of bird species protected by the Birds Directive might be written. The information on endemic species of European Community interest to be mentioned.

To use summary and ecosystems approach is recommended. It helps to identify key ecosystems, consequently to define common goal, objectives and measures. All habitats found in the site would be grouped according identified ecosystems, the same might be done with species.

Example. Nature values were evaluated in European Community Importance context. **12 habitats** of the Habitats Directive Annex I, **41 species** protected by Annex II and IV of the Habitats Directive and **13 bird species** protected by the Birds Directive as well as large amount of endemic species of aquatic ecosystem with European Community interest were identified during implementation of the Twinning project (2018-2019) in field observations and based on recent literature information (see the Annex 5). It is a big number of values in the area. In this part summary an ecosystems approach was used. The key values – habitats and species – were grouped according three key ecosystems types found in Prespa Lake NM and its surroundings. These three are: Aquatic, Seminatural dry terrestrial and Running Water and wetlands ecosystems.

Example.

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AQUATIC ECOSYSTEM:

HABITATS (Habitats Directive, Annex I): *3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation;*

SPECIES: flora (plant) species: Water Wheel Plant *Aldrovanda vesiculosa* (Habitats Directive, Annex II and IV, species code **1516**), fauna (animal) species: Otter *Lutra lutra* (Habitats Directive, Annex II and IV, species code **4111**), Prespa Spined Loach *Cobitis meridionalis* (Habitats Directive, Annex II, species code **5310**), Prespa Minnow *Pelasgus prespensis* (Habitats Directive, Annex II, species code **6264**), Prespa Roach *Rutilus prespensis* (Habitats Directive, Annex II, species code **5343**) and Prespa Trout *Salmo peristericus* (Habitat Directive, Annex II, species code **5355**), Dice Snake *Natrix tesseleata* (Habitats Directive, Annex II and IV, species code **1292**), Macedonian Crested Newt Triturus macedonicus (Habitats Directive, Annex II and IV, species code **5364**), Birds Directive species: Pygmy Cormorant *Microcarbo pygmaeus,* Dalmatian Pelican *Pelecanus crispus*, Little Egret *Egretta garzetta*, Great egret *Ardea alba*,* Squacco Heron *Ardeola ralloides*, Common Kingfisher *Alcedo atthis.*

Assessment of the state of ecosystem (component of ecosystems) are useful for presenting of existing situation.

Example. *Assessment:* Water quality is declining due to eutrophication and the use of pesticides and the shortages on sewage systems, also the water level has gone lower due to irrigation. However, the bird populations, especially of wintering birds, are still representative and stable. Conservation status is now slightly unfavourable, deteriorating.

Grouping of key nature values (particularly habitats) in the key ecosystem types helps for proposing of common objectives, management measures. Particularly it is very helpful till habitats are not mapped.

3.2. Threats and pressures

Threats to protected habitat types and species might be identified within and outside of Natura 2000 site (potential). Standard Data Form (SDF) for Natura 2000 sites might be used. This one can be found in Reference Portal for Natura 2000 (http://cdr.eionet.europa.eu/help/natura2000).

Example. Threats to protected habitat types and species are identified within and outside of the Prespa Lake NM. The evaluation is based on the result of METT workshop (personnel of Prespa Lake NM administration and stakeholders were involved). The findings within the event were transformed in classification which is used in Standard Data Form (SDF) for Natura 2000 sites. That can be found in Reference Portal for Natura 2000 (http://cdr.eionet.europa.eu/help/natura2000). Threats and pressures are presented for each of the main groups of values of the area.

3.2.1. Threats and pressures to … (the first of identified) ecosystem and depending fauna species

Threats and pressures might be presented for one of identified key ecosystem and nature values (concrete habitats and species might be listed at the beginning).

The list of identified threats and pressures (codes to be mentioned: A07, A08, F02.01.02, etc.) with the score (low, medium, high) might be presented.

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The major threats and their consequences might be explained.

Example.

3.2.1. Threats and pressures to aquatic ecosystems and depending fauna species

Assessed threats to freshwater habitats of standing water – habitats type *3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition – type,* shores, also protected plant species: *Aldrovanda vesiculosa* L., *Lindernia procumbens* L., fauna species Otter *Lutra lutra,* Prespa Spined Loach *Cobitis meridionalis,* Prespa Minnow *Pelasgus prespensis,* Prespa Roach *Rutilus prespensis, and* Prespa Trout *Salmo peristericus,* Dice Snake *Natrix tesseleata,* Macedonian Crested Newt *Triturus macedonicus,* and Birds Directive species: Pygmy Cormorant *Microcarbo pygmaeus*, Dalmatian Pelican *Pelecanus crispus*, Little Egret *Egretta garzetta*, Great Egret *Ardea alba**, Squacco Heron *Ardeola ralloides*, Black-winged Stilt *Himantopus himantopus*, Common Kingfisher *Alcedo atthis*, and the wintering water bird populations found in the Prespa Lake are:

A07 Use of biocides, hormones and chemicals in agriculture – high,
A08 Fertilization in agriculture – high,
F02.01.02 Fishing and harvesting aquatic resources – netting – low,
F03.01 Hunting – low,
G01 Outdoor sports and leisure activities, recreational activities – low,
H01 Pollution to surface waters (limnic, terrestrial, marine & brackish) – high,
H02 Pollution to groundwater (point sources and diffuse sources) – low,
I01 Invasive non-native species – high,
J01.02 Fire "illegal" (and fire suppression) – medium,
J02 Human induced changes in hydraulic conditions – high.

Eutrophication due to flow of nutrients from catchment area in Resen and from nearby countries is major threat to Prespa Lake. Eutrophication leads on decreased water transparency and increased competition with submerged vascular plants and phytoplankton algae. The lake receives unprocessed or insufficiently processed sewage and urban waste water from the nearby settlements or towns (f. e. Resen), significant quantities of pesticides and fertilizers are carried by the rivers Golema Reka and Istochka Reka due to agricultural activities. Diffused input of pesticides and fertilizers via the underground waters through the porous alluvium soils is also significant (there is no exact data about their quantity). Eutrophication process in ongoing in the lake so human disturbance influence on the conservation value of the area. Invasive species is also a severe threat to the lake. There are several invasive fish species those can be harmful for endemic species and function of ecosystem. Also recently observed Canadian waterweed *Elodea canadensis* can became nuisance that increases eutrophication problem. In dry years illegal burnings can increase nutrient loads in the lake.

3.2.2. Threats and pressures to … (the second of identified) ecosystem and depending fauna species

Threats and pressures might be presented for one of identified key ecosystem and nature values (concrete habitats and species might be listed at the beginning).

The list of identified threats and pressures (codes to be mentioned: A07, A08, F02.01.02, etc.) with the score (low, medium, high) might be presented.

The major threats and their consequences might be explained.

3.2.3. Threats and pressures to … (the third of identified) ecosystems and depending fauna species

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Threats and pressures might be presented for one of identified key ecosystem and nature values (concrete habitats and species might be listed at the beginning).

The list of identified threats and pressures (codes to be mentioned: A07, A08, F02.01.02, etc.) with the score (low, medium, high) might be presented.

The major threats and their consequences might be explained.

3.3. Management effectiveness and competences

Management Effectiveness Tracking Tool (METT) is one of the two most widely used/adapted globally applicable generic systems developed to assess protected area management effectiveness. The methodology of a rapid assessment based on a scorecard questionnaire. The scorecard includes all six elements of management identified in the IUCN-WCPA. Framework (context, planning, inputs, process, outputs and outcomes), but has an emphasis on context, planning, inputs and processes. It is basic and simple to use, and provides a mechanism for monitoring progress towards more effective management over time. It is used to enable protected area (PA) managers and donors to identify needs, constraints and priority actions to improve the effectiveness of protected area management.

Total score might be counted. It could be compared with the results of earlier evaluations if they were done before.

Example. Management Effectiveness Tracking Tool (METT) is one of the two most widely used/adapted globally applicable generic systems developed to assess protected area management effectiveness. It is used to report progress towards the Convention on Biological Diversity. The methodology is a rapid assessment based on a scorecard questionnaire. The scorecard includes all six elements of management identified in the IUCN-WCPA. Framework (context, planning, inputs, process, outputs and outcomes), but has an emphasis on context, planning, inputs and processes. It is basic and simple to use, and provides a mechanism for monitoring progress towards more effective management over time. It is used to enable protected area (PA) managers and donors to identify needs, constraints and priority actions to improve the effectiveness of protected area management.

Results of METT discussed and agreed at the workshop with personnel of Prespa Lake NM administration and stakeholders (organised by Resen municipality with the support of PONT (Prespa Ohrid Nature Trust)).

According to the METT evaluation the total score for Prespa Lake NM was 44 points out of 99 point which is the maximum. The previous evaluation some years ago gave a result of 48. When evaluating result, the context has the highest ranking 3/3 due to clear legal status of the area. Other key elements (planning, input, processes) has evaluation level of app. 40 % of the maximum level. As an outcome the evaluation indicates that “Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted”.

However, it is important to give a remark, that this evaluation is not based on fully understanding of the requirement of implementing Habitats and Birds Directives in Prespa Lake NM. It mainly refers the requirements of the management of the area as a nature monument with existing working environment. Need for sustainable funding from government is not enough addressed. Additionally, the capacity in law enforcement and handling ecological issues by the administration has to be strengthened.

4. Strategy

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This is the most important part based on ecological information, on nature values investigation and evaluation. There could be summary statement on the importance, on values of the area.

Example. Prespa Lake and its surroundings with **12 habitats**, at least **41 species** of Annexes II and IV of the Habitats Directive and **13 bird species** protected by the Birds Directive being important at European Community level should be protected by both EU directives (Habitats Directive and Birds Directive). This area fulfils requirements of Habitats Directive as Site of Community Importance (SCIs) because of presence of 15 species of Annex II of the Habitats Directive in terrestrial and aquatic habitats and several endemic species of Prespa Lake aquatic ecosystem. This strongly supports that Prespa Lake NM and its surroundings should upon the agreement of the European Commission be established as Special Area of Conservation (SAC) under Habitats Directive and Specially Protected Area (SPA) under Birds Directive.

Most of biodiversity values concerning habitats and most species of the Habitats Directive are present in Ezerani Nature Park as well. So the Strategy can also be applicable for Ezerani Nature Park.

4.1. Common Vision for the future of the Natura 2000 site (potential)

Common Vision demonstrates what are we going to achieve in Natura 2000 site (potential site) and creates common understanding of all actors in the area.

It could have general (summary) statement and more detailed explanation for biodiversity, visitors, local communities and protected area administration. Other parts for more detail explanation could be added if needed.

Prespa Lake and its shores is an area maintaining a high nature value for European Community. Conservation status of all habitats and species protected by Habitats and Birds Directives is favourable. Human activities are in harmony with natural processes, visitors enjoy possibilities of eco-tourism and healthy environment. Natura 2000 sites creates additional economic benefits for local people and communities.

Biodiversity *– nature values of national and European Community Importance naturally coexists in the same area. Natural habitats and populations of protected species are stable and the quality of the water is improved. Invasive species does not anymore cause harm for natural species and habitats.*

Prespa Lake with its environment may be considered as nature school, where ***visitors*** *can learn and understand the necessity to protect all types of habitats and species together with a possibility to stay and enjoy a clean, healthy and quiet environment. Basic visitor facilities are available.*

Prespa Lake is a source of pride and appreciation. The area offers opportunities for traditional grazing and production of ecologically friendly food. ***Local communities*** *are directly involved in management of Natura 2000 site and values. EU funds for management activities are available for farmers. The eco-tourism along with the clean and healthy environment create additional economic benefits for the local people and communities.*

Resen municipality *has motivated and professional staff managing the area effectively. Scientific and education activities are established, giving a possibility for deeper understanding and appreciation of Natura 2000 site values. All stakeholders are involved in protection and management of habitats and species.*

4.2. Mission of responsible administrative institution and other involved institutions

Mission of responsible protected area administration to be formulated. Other institutions might know what are expectation for they activities in Natura 2000 site.

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Example. Resen municipality – the managing authority of Prespa Lake NM / potential "Prespa Lake" Natura 2000 site of European Community Importance ***ensures*** that:

- protected nature values of the area are used and enjoyed by the community in a good manner, ensuring that such approach will be applied by future generations;
- protected nature values of the area create benefits for people of three countries located around the lake.

The other institutions using the resources of Prespa Lake NM / potential Natura 2000 site ***understand*** the values of European Community Importance and ***cooperate*** with Resen Municipality, supporting the activities necessary for protection of nature values, creating clean and healthy environment and additional economic benefit for the local people, communities and visitors.

4.3. Protection and management goal and objectives

Having a common vision for Natura 2000 site it is easy to write goal and objectives for 10 years (other period could be used). Objectives might be related to selected key ecosystems. It helps to use more efficiently all resources (financial, human, time, etc.) for protection of nature values.

Example. Goal. To protect biodiversity – nature values of European Community Importance taking into account the needs of local communities.

Objectives for protection of Prespa Lake NM biodiversity – nature values of European Community Importance are presented in a table below.

Goal	Ecosystem	Objectives
To protect nature values of EU Importance taking into account the needs of local communities	Aquatic ecosystems, habitats and species	To ensure proper protection of water bird species, eliminating threats and pressures for water quality, the ecosystem, habitat and species
	Dry terrestrial ecosystems, habitats and species	To ensure favourable conservation status and management regime in dry land habitats, eliminating threats and pressures for the ecosystems, habitats and species
		To recover, restore semi-natural habitats of dry land
	Running rivers and wetlands ecosystems, habitats and species	To ensure favorable conservation status of habitats and species of running rivers and wetlands ecosystems, eliminating threats and pressures for the ecosystems, habitats and species

4.4. Prerequisites necessary for protection of biodiversity – nature values of European Community Importance

Prerequisites (conditions) are necessary for management of the area in order to achieve the Vision and the management goal and objectives, to be able to implement measures identified in the

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document. Some of prerequisites can be seen as some functions of PA administration. Prerequisites help to identify additional management measures if needed for management of Natura 2000 site. The most important prerequisites are related with available funding sources, collection of data necessary for management of the site, involvement of different stakeholders, on possibilities to diminish negative impact for nature values, law enforcement, etc.

Example. Prerequisites (conditions) are necessary for management of the area in order to achieve the Vision and the management goal and objectives, to be able to implement measures identified in the document (Annex). Some of the issues listed below can be seen as functions of PA administration – Department for Environment of Resen municipality where as some are describing the working approach and practises of the administration and its personnel. Prerequisites help to identify additional management measures if needed for management of Natura 2000 site. The most important prerequisites are:

- Permanent funding sources are available from state budget, Resen municipality, UNDP, PONT and other funds, additional funding by national and international projects, donors and programs are available as well;
- Data necessary for management of the site are collected, GIS databases exists.
- Ministry of Environment and Physical Planning (MoEPP), Ministry of Agriculture, Forestry and Water Economy (MAFWE), other relevant ministers support activities of Resen municipality in management of Prespa Lake NM.
- Etc. …

4.5. Proposals on borders and zones of Natura 2000 site (potential)

Proposals for Natura 2000 site borders and zones might be related with the location of habitats and species of European Community Importance. If valuable habitats or species are outside of existing protected area, it could be proposed to enlarge size of protected area or to have bigger Natura 2000 site. The same can be said for zones of protected area. Just needed to mentioned, that zoning is not necessary for Natura 2000 site.

Example. Prespa Lake NM (together with surroundings) with 12 habitats of the Habitats Directive Annex I and 32 species protected by Annex II and IV of the Habitats Directive and 9 bird species protected by the Birds Directive as well as large amount of endemic species of aquatic ecosystem makes Prespa unique lake in Europe with high conservation values so adequate decision for protection might be taken and adequate borders of Natura 2000 site might be established. Different ways could be proposed, but during Twinning project it was decided to propose two Natura 2000 sites in the area:

1. “Prespa Lake” Natura 2000 site, including Prespa Lake NM and Ezerani Nature Park (boarders of potential Natura 2000 site are identified in Figure 6);
2. “Golem Grad island” Natura 2000 site (borders of Golem Grad island).

Values of western shores of Prespa Lake being in Galicica National Park might be protected in “Galicica” Natura 2000 site. Proposal made by previous projects for the borders of Galicica Natura 2000 site do not correspond the high values of the area along Prespa Lake. It might be corrected preparing SDF of the area.

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Example. Proposed preliminary borders of potential "Prespa Lake" Natura 2000 site

Example. Potential Natura 2000 site "Prespa Lake" might include not only Prespa Lake, but its eastern shores – areas around Krani, Štrbovo and Nakolec till the Greece border and till the zone of highway – Greece – Resen as it is shown in the figure 6. Area for reconstruction of the highway might be excluded from Natura 2000 site, but measures (such like special barriers, fences, etc.) for species (reptile species, etc.) protection might be implemented during the reconstruction of existing road.

Eastern shores of Prespa Lake, especially around Krani, Štrbovo and Nakolec, are very valuable for protection of priority habitats. Priority habitat types of Annex I are 6260* Pannonic sand steppes and 6220* Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*. The few pseudo-steppes are located in this area. However, these habitats are connected to very representative pseudo-steppes of the western slopes of Baba mountains between Prespa Lake NM and Pelister National Park. In addition to these habitat types Prespa Lake NM surroundings are important for many Habitats Directive reptiles and amphibians so mentioned area is recommended to be included in the potential Natura 2000 site "Prespa Lake".

Example. Zonation of Prespa Lake NM, especially the borders of different zones do not play an important role in implementation of the requirements of Habitats and Birds Directives. In contrast it is important to define concrete management principles for each of the habitat type, which secure that the habitats and species of European Community Importance are maintained in a favourable conservation status. This approach should be integrated into the regulation and description of different zones. If there would be a threat to conservation of habitat or species, urgent active measures should be implemented not only in active management zone, but in zone of sustainable use and even in strict protection zone. And in opposite: the negative development should be prohibited also in zone of sustainable use where habitats might exist in small fragments – for example: habitats of running rivers and wetlands.

Strict protection zones in Prespa Lake NM occupy only very small area so they don't play an important role for protection of values of European Community Importance. In general, strict protection zones are not necessary for protection of EU nature values, but an exception could be the water area around the Golem Grad island. In this case strict protection zone would be helpful for regulation of fishing and visiting activities. Fishing activities might be prohibited 200 m around the island. Visiting of the island should have very strict regulations, prohibiting visiting of the island and the use of waters around the island (200 m around) during bird breeding period.

5. Management of the area (Management Plan)

5.1. Management principles and recommendations

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Management principles are general guidance for management of the areas, nature values helping to achieve favorable status of habitats and species. It is the easiest way to achieve goals. Some habitats and species do not need any intervention, some of them need quite active management. Management principles are different for different values (habitats, species). Activities, measures for protection, maintenance or restoration might be based on management principles. Understanding of management principles helps to propose additional urgent measures for protection of values (habitats, species).

Example. Management principles are general guidance for management of the areas, nature values helping to achieve favorable status of habitats and species. It is the easiest way to achieve goals. Some habitats and species do not need any intervention, some of them need quite active management. Management principles are different for different values (habitats, species). Activities, measures for protection, maintenance or restoration might be based on management principles. Understanding of management principles helps to propose additional urgent measures (not mentioned in the Annex) for protection of values (habitats, species).

Management principles might be grouped according selected ecosystems. If three key ecosystems were selected, three groups of management principles might be proposed.

Example.

5.1.1. Aquatic ecosystem, habitats and species management principles:

- Management should be based on careful planning by municipality of Resen together with environment specialists and representatives of all stakeholders around the lake using the guidelines defined in Prespa Lake Watershed Management Plan. Water quality monitoring should be based on the requirements of Water Framework Directive.
- All actions which decrease eutrophication and nutrient accumulation from whole catchment area, which decrease use of fertilizers and pesticides in agriculture, as well as all possible solutions solving conflicts between present land use and conservation measures, especially reducing the water for irrigation are beneficial for the aquatic ecosystem, habitats and species.
- Management of reedbeds in a way that decrease accumulation of organic material and nutrients at the lake are necessary. Removal and thinning of dense stands of reeds by mowing or grazing so that clearings are formed in shallow shoreline water will be beneficial for *Aldrovandra vesiculosa*. Removing of reed can be done at particular parts of reed beds around the lake based on detailed and careful planning. Digging of artificial shallow pools at shoreline reedbeds might be efficient management measure and will give benefits for several plants and fauna species which accommodate occasionally inundated habitats with high conservation interest. Illegal burnings should be under strict control and prohibition.

In the same way for other ecosystems…

5.2. Management objectives and corresponding measures

Concrete measures are necessary for achieving the goal and selected objectives. Protected area administration and other involved institutions might know what concrete actions might be done in Natura 2000 site. It is not necessary to formulate a lot of measures. Just the most important to be proposed and implemented.

Example. Objectives for protection of Prespa Lake NM (potential Natura 2000 site) biodiversity – nature values – habitats and species of European Community importance and corresponding measures.

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Example. Objectives for protection of Prespa Lake NM (potential Natura 2000 site) biodiversity – nature values – habitats and species of European Community importance and corresponding measures

Ecosystem	Objectives	Measures
Aquatic ecosystems, habitats and species	To ensure proper protection of water bird species, eliminating threats and pressures for the water quality, the ecosystem, habitat and species	1. Creating good conditions of habitat for water birds (*Crispy pelican, Pigmy cormorant*) and for wintering birds
Dry terrestrial ecosystems, habitats and species	To ensure favourable conservation status and management regime in dry land habitats, eliminating threats and pressures for the ecosystems, habitats and species	2. Removing surplus woody vegetation, invasive species from natural, semi-natural grasslands
		3. Extending appropriate grazing in natural, semi-natural grasslands
	To recover, restore semi-natural habitats of dry land	4. Eliminating the consequences of illegal actions
Running rivers and wetlands ecosystems, habitats and species	To ensure favorable conservation status of habitats and species of running rivers and wetlands ecosystems, eliminating threats and pressures for the ecosystems, habitats and species	5-6. Implementing specific measures for protected species habitats (managing reedbeds on the shores of Prespa Lake, small water bodies; old trees)

5.3. Specification of proposed measures (sub-measures) and indicators (according table above)

5.3.1. – 5.3.6. … explanation of proposed specific concrete measures

If proposed measure is not clear or requires special explanation it could be explained in more detail way writing sub-measures, actions. For example: if it is not possible to do something in the area without changing the legal acts, they need to be changed before; if there is not possible to implement some concrete actions without some plans, the plans need to be prepared before, etc. Sometimes it is necessary to explain process of implementation of specific measures (for example reed management).

Indicators of implementation help to evaluate results, to know did they were achieved.

Example. 5.3.1. Creating good conditions of habitat for water birds (*Crispy pelican, Pigmy cormorant*) and for migratory and wintering birds

Explanation of proposed measure:

- Supplementing existing legal acts/agreements on fishing regulation in Prespa Lake with the purpose to reduce water bird disturbance and killing in fishing nets: setting of terms of using fish-nets; introducing non-fishing zones based on the requirements of protected breeding bird species populations and the data on distribution of migratory/wintering bird species concentrations.
- Supplementing rules for using boats in the Lake for tourism purposes. Limitations for using of sail boats around Golem Grad island has to be set in zone no less than 200 m in width with a purpose to reduce disturbance of Dalmatian pelican, Pigmy cormorant and other birds. Marking the non-sailing zone of 200 m with buoys around Golem Grad island.

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- Preparing and implementing Monitoring programme for recording number and distribution of breeding /wintering bird populations.

Indicators of implementation: Fishing regulation acts taking into account the needs of breeding / wintering birds are approved. Rules for using boats in the Prespa Lake for tourism purposes supplemented, area around Golem Grad island is marked. Populations of Dalmanian pelican and Pygmy cormorant around Golem Grad island increased. Number of wintering birds increased.

The same way for other measures.

Table showing priority actions, implementing institutions and time table for implementation of proposed management measures is a part of each strategic documents.

Example. Management measures, actions (priority actions), implementing institutions and timetable for implementation of proposed management measures (5.3.1. – 5.3.6.). Years might be calculated after approval of the document.

Management measures	Implementing institutions	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
5.3.1. Creating good conditions of habitat for water birds (Crispy pelican, Pigmy cormorant) and for wintering birds											
*** Supplementing existing legal acts/agreements on fishing regulation in Prespa Lake**	MoEPP, MAFWE										
*** Supplementing rules for using boats in the Lake for tourism purposes**	MoEPP										
*** Preparing and implementing Monitoring programme for recording number and distribution of breeding /wintering bird populations**	MoEPP										
5.3.2. Removing surplus woody vegetation, invasive species from natural, semi-natural grasslands											
*** Cutting and removing shrubs and trees from areas of semi-natural grassland habitat types**	Resen municipality, farmers, etc.										
*** Cutting and removing all invasive tree species from all grasslands and adjacent areas**	Resen municipality, farmers, etc.										
Preparing special study for biomass fuel use assessment	Resen municipality										
5.3.3. Extending appropriate grazing in natural, semi-natural grasslands											
*** Continuous grazing in natural and semi-natural grassland**	Resen municipality, farmers, etc.										
Preparing and approving the grazing program for all semi-natural grassland habitat types	Resen municipality, Agency of Pastures										
Organizing grazing activities: promotion actions	Resen municipality										
5.3.4. Eliminating the consequences of illegal actions											
Preparing Damaged areas restoration program and implementing proposed actions	Resen municipality										
Installing signs and information stands on the responsibility for littering of the area, etc.	Resen municipality										
5.3.5. Implementing specific measures for habitats of protected species (reedbeds on the shores of Prespa Lake)											
Preparation and implementation of Management of reedbed growing on shallow littoral zone of Prespa Lake Action Plan	Resen municipality										
*** Management of reedbed on dry or wet soils of Prespa Lake shore**	Resen municipality										
5.3.6. Implementing specific measures for habitats of protected species (small water bodies, old trees)											

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Inventory, mapping of all small water bodies, wetland's, old (≥ 50 years)/ big trees and their marking	Resen municipality										

***** Priority measures

5.3.7. The other important measures to be implemented

Other general important measures can be proposed in the management plan.

Table showing priority actions, implementing institutions and time table for implementation of proposed management measures is a part of each strategic documents.

Example. Timetable for implementation of other important measures (years might be calculated after approval of the document):

Management measures	Implementing institutions	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Setting boundaries											
*** Setting the exact boundaries of the territory of Prespa Lake NM in GIS and marking them**	MoEPP										
Establishing boundaries for development of the settlements around Prespa Lake NM in scope of detailed spatial plans (to be in line with protection with habitats and species)	MoEPP										
Reserch, monitoring, data basis											
Making Annual survey of wintering and breading birds	Resen municipality, NGOs involved										
*** Making habitats mapping**	MoEPP										
Creating data base on Natura 2000 habitats and species, including migrating species	MoEPP										
Monitoring of habitats and species of EU importance	Resen municipality										
*** Creating data base on boarders of ownerships and rights of the area with layers of habitats and species**	MoEPP										
Awareness raising and education											
*** Implementing activities of awareness raising on the influence of the agriculture, land use and water management practices including efficient waste water treatment in the whole watershed area for nature values; monitoring of the influence**	Resen municipality										
*** Implementing special educational programmes for local people and visitors**	Resen municipality										
Creating special info stands (putting information on nature values of European Community importance), observation points, marking trails, with a special attention to Golem Grad island	Resen municipality										

***** Priority measures

6. Environmental impact evaluation of the plan

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General evaluation on the impact of the plan especially in the light of the key values of the area and their management according to the requirements of Habitat and Bird Directive.

Annexes

Annex 1. Standard data forms
Annex 2. List of species and habitats
Annex 3. Results of METT analysis
Annex 4. List of literature

Any other useful annexes can be added

References

- Previous projects, management plans, spatial plans, legal documents used for preparation of the Management Plan to be mentioned
- Any other references used for the work to be

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ANNEX II: Example on the program for management planning training

Training on preparing management plans for Natura 2000 areas

Timing: Thursday 11.7.2019

Aim: to present the content of Natura 2000 management plane developed by Twinning project using as an example the draft plans for Prespa Lake NM and Pelister NP Natura 2000 management plan

Target group: MoEPP, PA administrations, national experts

Program:

Time	Topic	Exponent
9:00	Opening	representative of MOEPP and/or PA administration
9:10	Background and requirements for management plans of Natura 2000 sites	Arto Ahokumpu
9:25	General content of Natura 2000 management plan	Ruta Baskyte
9:40	Description of the area; habitats and species of EU importance	Kimmo Syrjänen
10:20	Assessment of the values including threats and pressures	Arto Ahokumpu
10:40	Strategy	Ruta Baskyte
10:50	Management of the area, practical management measures	Ruta Baskyte, Arto Ahokumpu, Kimmo Syrjänen
11:20	Environmental impact evaluation of the plan	Arto Ahokumpu
11:30	Discussion	
11:50	Foreword and closing	MoEPP/Twinning

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Target group: MoEPP, specialists in monitoring, PA administrations, NGOs, other projects and interested experts

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