

**Guidelines on the management of EMERALD sites
at national level with respect to climate change
adaptation and mitigation**



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IMPLEMENTATION OF THE GUIDELINES

Provision of practical advice for site managers and policy makers **with respect to the management** of Emerald sites at national level to mitigate and adapt to climate change with two objectives:

Increasing available habitat for species

Enhancing diversity and resilience of the protected-area network



MANAGEMENT PLANNING STEPS FOR EMERALD SITES

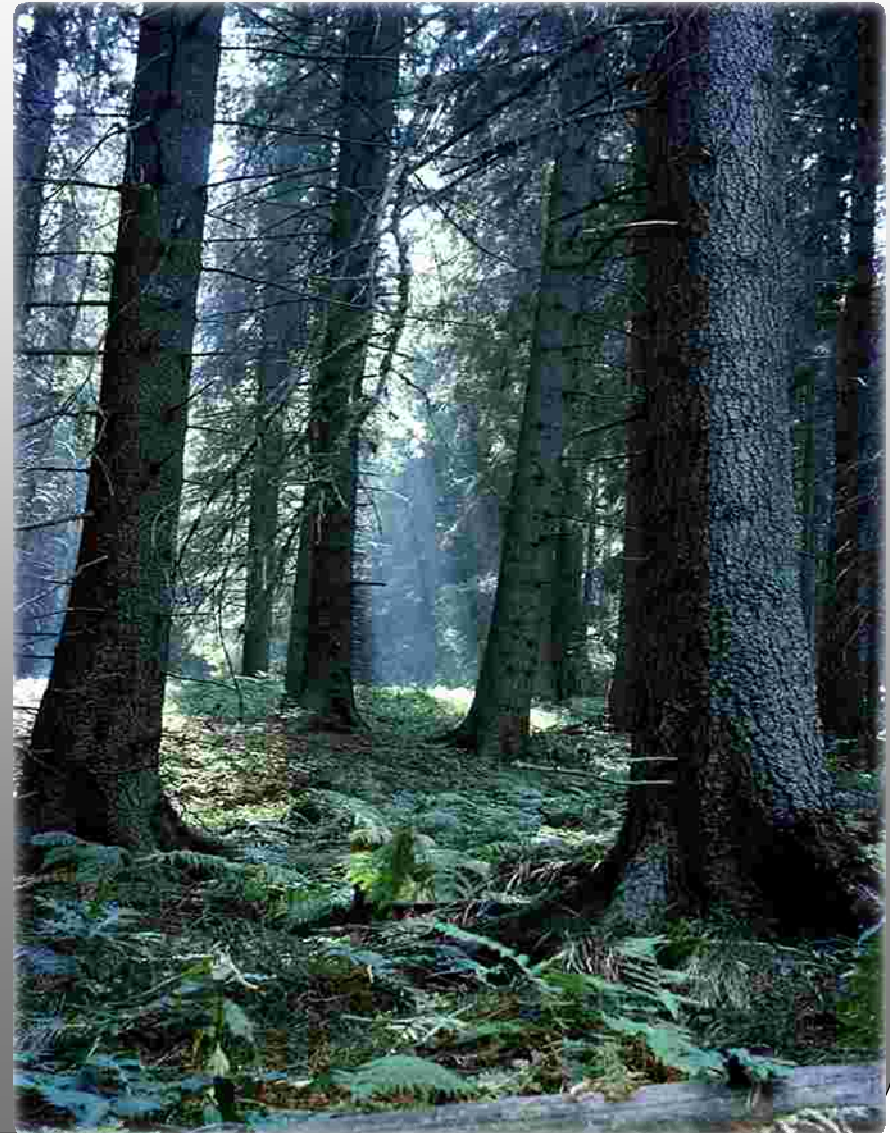
Step 1: *Pre-planning – selection of the site subject of planning*

Step 2: *Data gathering*

Step 3: *Assessment of the major climate change aspects and their effect and impact on biodiversity.*

Step 4: *Identification of key elements (habitats and species) within the site subject of planning*

Step 5: *Adaptive Management plan*

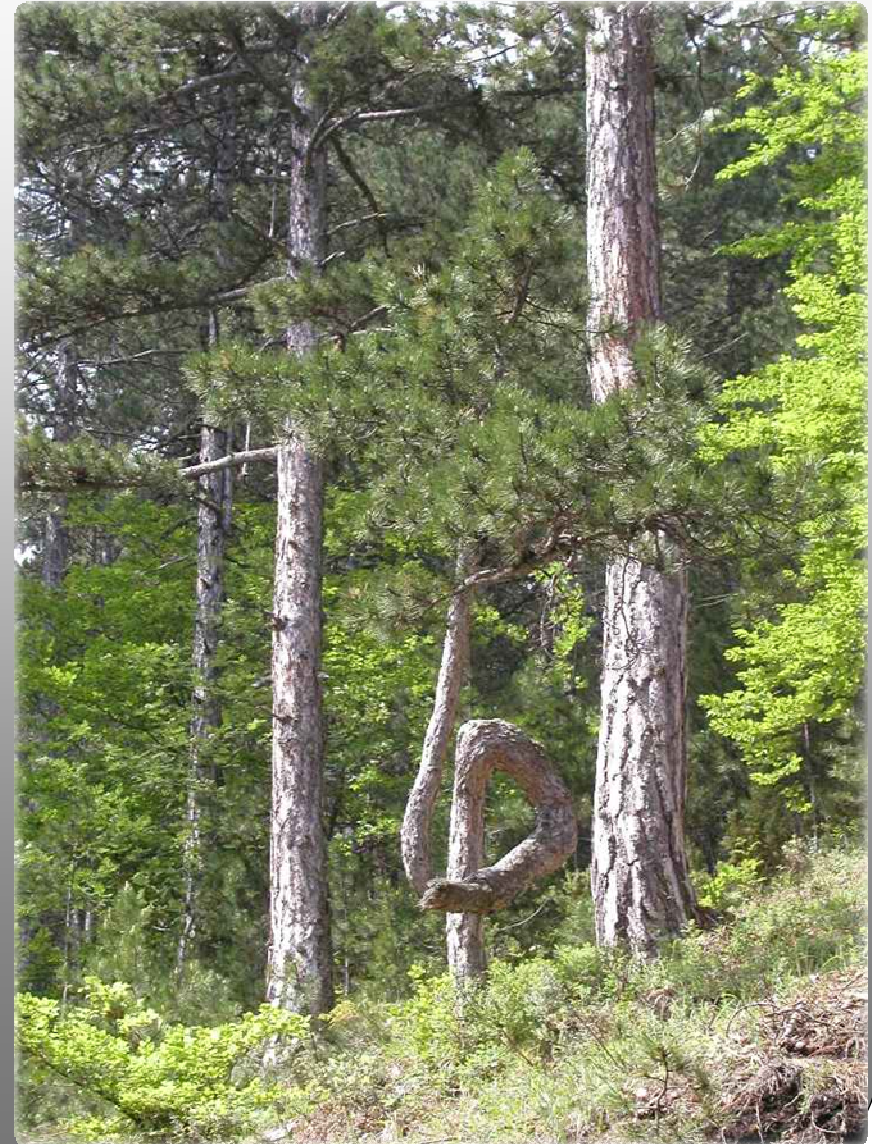


Step 1: Pre-planning – Selection of the site subject of planning

This Guidelines can be used for all Emerald sites:

- ❖ for each of the officially nominated “candidate Emerald sites”
- ❖ for each of nationally designated Emerald sites

One planning document can include several sites, especially if the sites are part of common green infrastructure or corridors.



Step 2: Data gathering

I. General information

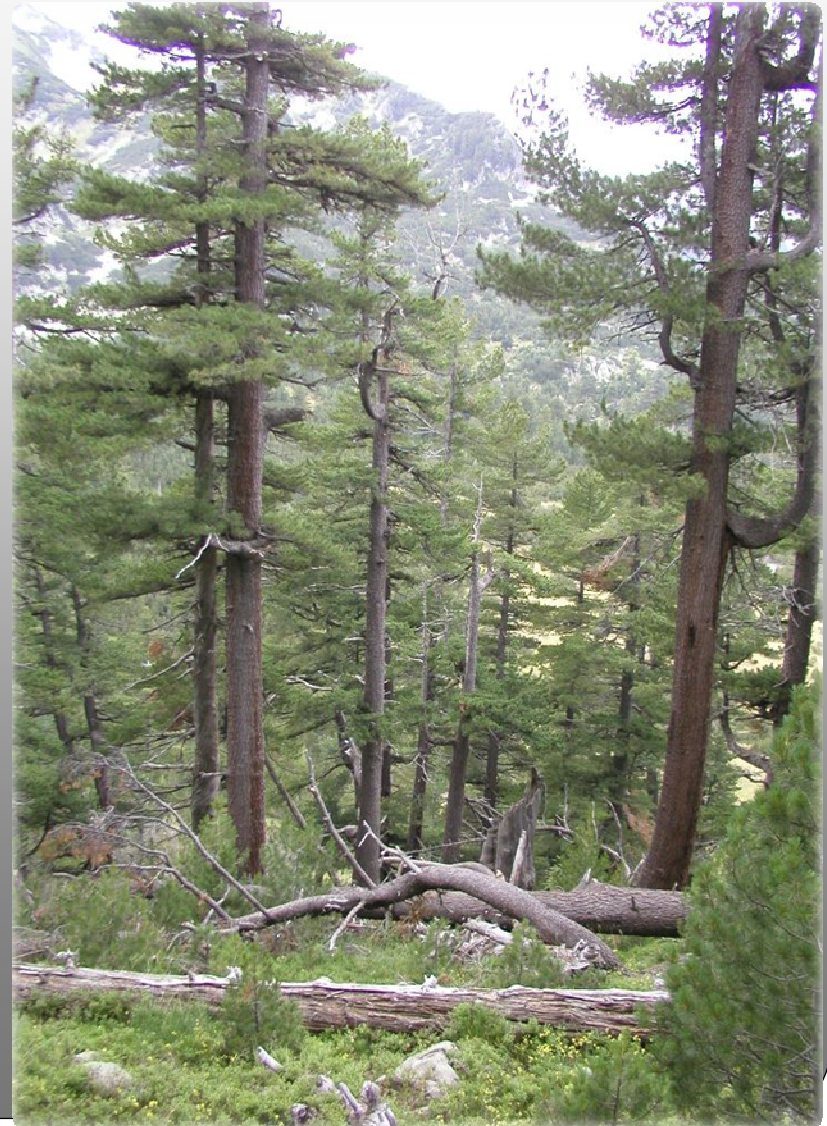
❖ *Location and borders*

❖ *Legal status*

❖ *Ownership*

❖ *Management structure*

❖ *Existing projects*



Step 2: Data gathering

II. Abiotic information

- ❖ *Climate*
- ❖ *Geology and geomorphology*
- ❖ *Hydrology and hydro-biology*
- ❖ *Soils*



Step 2: Data gathering

III. Biological information

Information for site's habitats:

- *Mapping of habitats*
- *Assessment of the conservation status of habitats identified in the site*

Criteria for assessing the habitats conservation status:

Size distribution of natural habitat;

Its structure and specific functions;

Status of its typical species.



- The inventory includes all natural habitats presented in the site area, belonging to revised Annexes I of Resolution 4 (1996) of the Bern Convention on endangered natural habitat types using the EUNIS Habitat Classification and revised Annex I of Resolution 6 (1998) of the Bern Convention listing the species requiring specific habitat conservation measures.
- The experts may include other important habitats for the Emerald site with conservation, ecological or landscape value

Step 2: Data gathering

III. Biological information

Determination of plant and animal species in the site

- *Mapping of species*
- *Assessment of the conservation status of species identified in the selected site*

Criteria for assessing the conservation status of species:

- 1) Population dynamics and number;
- 2) Size of the natural range;
- 3) Size of habitat that ensures the survival of species;
- 4) Sex and age structure.



- The inventory of plant and animal species during the site planning process includes (if possible) all species, presented in the area, belonging to Annexes I, II and III of the Bern Convention.
- In other case it is recommended to include the indicator (focal) species, which are most sensitive on the climate changes. It is advisable to perform inventory of all other important species of local conservation value.

Step 3: Assessment of the major climate change aspects and their effect and impact on biodiversity

The expected impact for Emerald species and habitats resulting from:

1. Sea level rise;
2. Overall temperature increase;
3. Changing precipitation patterns;
4. Increase of extreme events.

The assessment of the major climate change aspects and their effects on biodiversity

To assess vulnerability of species

To assess vulnerability of habitats

To assess possible influence of the areas surrounding the Emerald sites

Prioritization of the impacts



***Step 4: Identification of key elements (habitats and species)
within the Emerald site***

Operational tasks for the selection of key elements :

Prepare a list of all specific to the site natural habitats and species of flora and fauna, identified in point 2.3. (Biological information)



It is recommended to include in the list both the habitats and / or the species of flora and fauna existed in the past and may be recovered, and those can be pre-located.



Add to the list these ecological processes /aspects (significant for the protection or recovery of species or habitats), which can be considered as a key element of the territory.



Remove from the list those elements that are not important to the protected area and management objectives are not necessary. Priority species and habitats should not be excluded, even if their management should be planned only as monitoring.



The elements that remain are the key for the management



Next task is to define the management regimes and norms.

Step 5: Adaptive Management plan

- ❑ Site-specific integrated management approach
- ❑ Adaptive management is a dynamic process where people of many talents and disciplines come together to make the right decision in the best interests of the resources.
- ❑ Adaptive management must be a social as well as scientific process

Step 5: Adaptive Management plan

1. Regulatory recommendations for the implementation of measures

1.1 Managing zones

If the territory of the selected Emerald site needs different regimes for different parts, the zoning approach is suitable for its management.

1.2 Regimes and norms

General and/or *specific* management regimes should be defined, to maintain or to improve the conservation status of the key *habitats* and *species* defined in Step 4



~Step 5:

2. Measures, focused on managing climate change adaptation and mitigation of the Emerald Network sites

Managers of protected areas need to take a long-term vision, and actions to promote adaptation of species to climate changes for periods up to 20 to 50 years, depending on the speed with which ecosystem changes are expected.

- *Reduce existing pressures*
- *Enhance ecosystems and species resilience*
- *Ensure required abiotic conditions*
- *Management of extreme events*
- *Control of invasive (alien) species*



~Step 5:

3. Measures at the network level

If the site is large and connected to others - this is an opportunity for successful network management.

If the site is small and isolated - the successful implementation of the Network measures is difficult

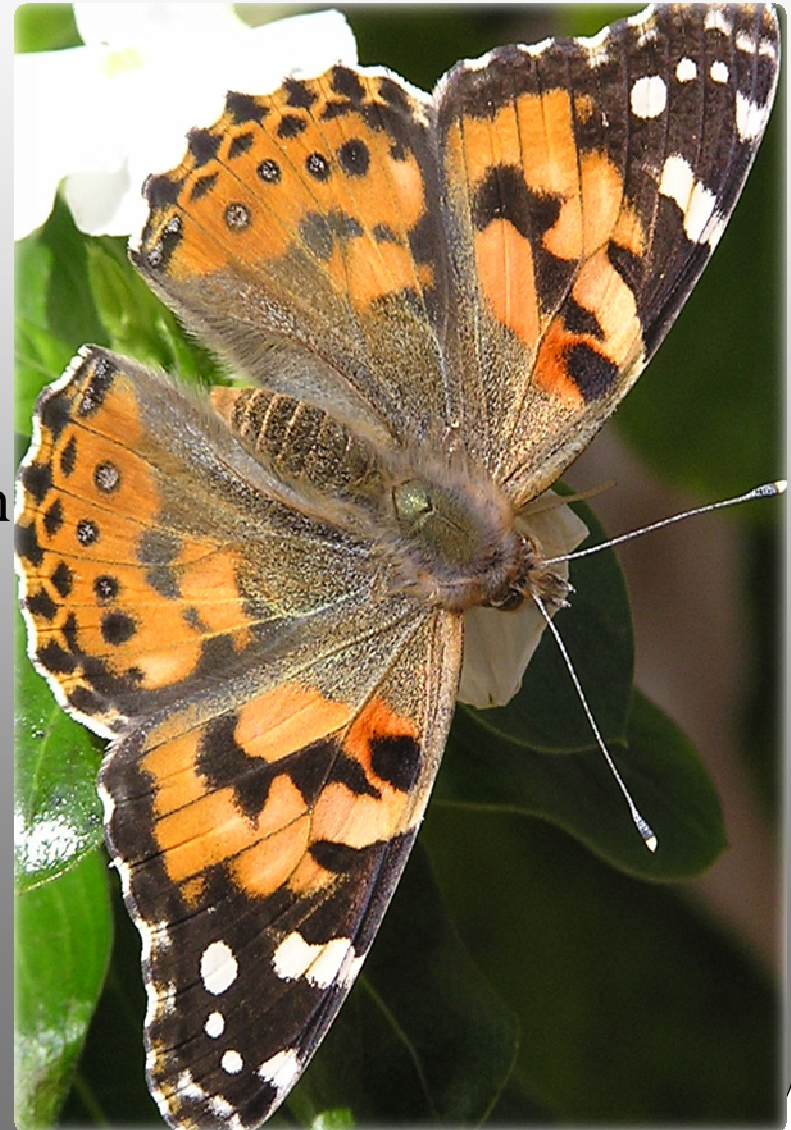
- ***Selection of priority conservation natural habitats that would help species movement***
- ***Improve connectivity by development of stepping-stones and corridors.***
- ***Implementation of appropriate management of the wider landscape and development of a green infrastructure.***



~Step 5:

4. Implementation of measures

- ***Spatial planning*** - planning and management of the green infrastructure at four levels – *international, national, regional and local*.
- ***Cross-border corridors*** - identification of international climate adaptation zones.
- ***Public involvement*** - campaigns regarding the goals, activities and expected results from Emerald Network, as well as the possibilities to participate.



~Step 5:

5. Monitoring and review of the implementation of measures

5.1. Monitoring guidelines and requirements

Baseline monitoring of key biodiversity indicator elements

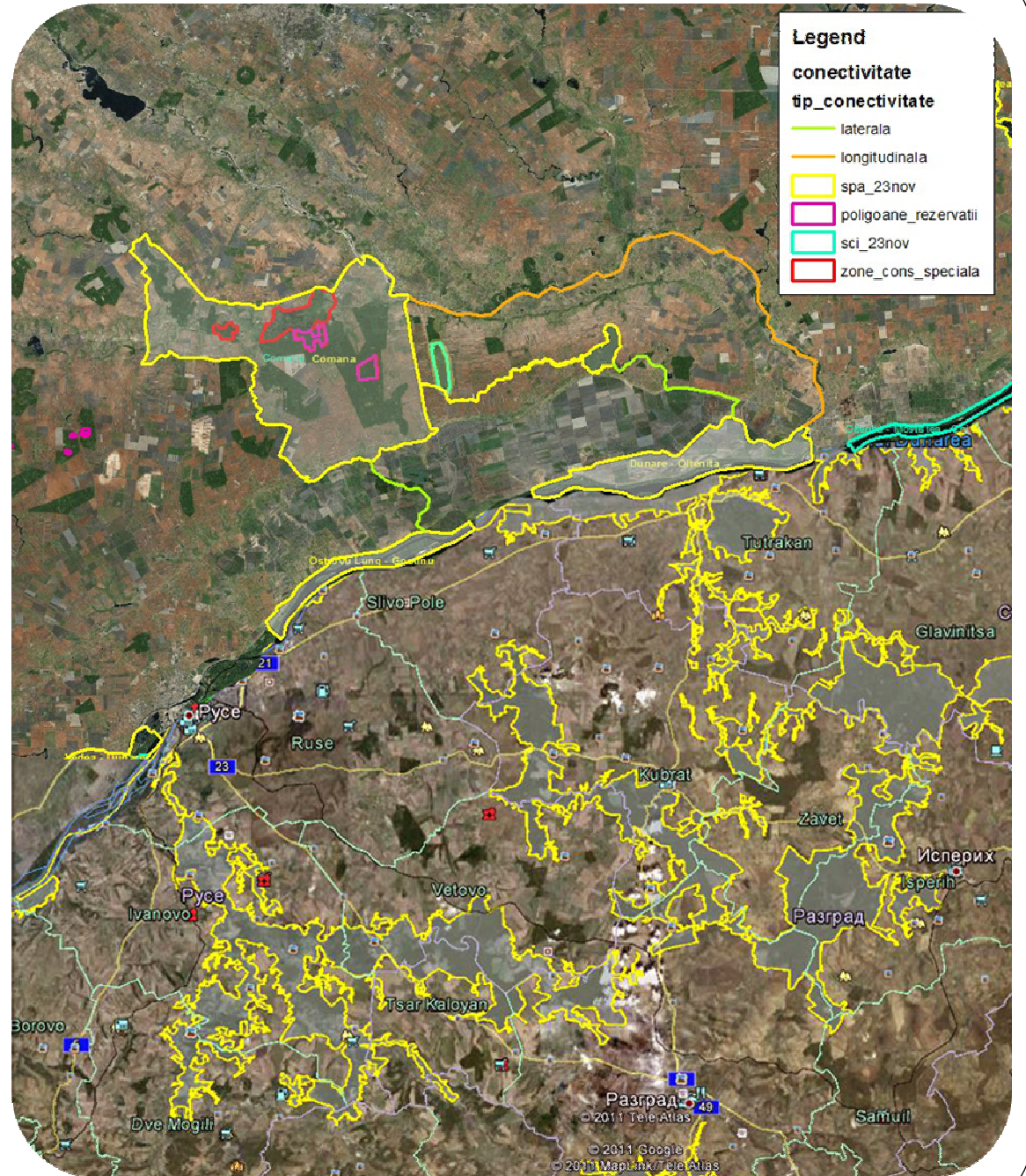
Monitoring of management interventions



Routine and Event Monitoring

5.2. Indicators for the effectiveness of the measures and their effects



**Management plan of
the territories
between Natura 2000
sites Lomovete
(Bulgaria) and
Comana (Romania)
and nature parks**



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1. **Analysis and evaluation** of the biodiversity of protected areas/sites in the project territory in Bulgaria and Romania, in the context of species movement.
 2. **Identification of the opportunities and limitations (threats)** to species movement in and between protected areas.
 3. **Selection of priority** conservation natural habitats that would help species movement.
 4. **Elaboration of a model management plan** of a cross-border ecological corridor and monitoring of processes.
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FUNDING FOR THE MEASURES IDENTIFIED

Funding for the measures programme will come from a variety of sources according to the aspect covered: national government, local authority, university/institute, NGO or internal resources.

- ❖ *Pro-Biodiversity Business Opportunities*
- ❖ *Compensation mechanism*
- ❖ *BioBanking scheme's methodology*



MAIN CONCLUSIONS AND RECOMMENDATIONS

The Emerald Network as an extension of Natura 2000 could contribute to managing climate change by:

- ❖ *Providing natural storage capacity for carbon*
- ❖ *Increasing capture of carbon dioxide in natural ecosystems and reduced CO2 emissions*
- ❖ *Reducing the risks and impacts from extreme events*
- ❖ *Effecting local and regional micro-climate*
- ❖ *Reducing impacts of sea level rise*
- ❖ *Ensuring natural water retention and protection from erosion*



Following actions are recommended in order to implement all this functions:

- **Policy and Regulatory Aspects**
- **Management Systems**
- **Environmental Aspects**
- **Social and Communication Aspects**
- **Economic Aspects**
- **Green infrastructure**



GUIDANCE FOR PRACTITIONERS ON CLIMATE CHANGE AND EFFECTIVE MANAGEMENT OF ECOLOGICAL NETWORKS, WITH A PARTICULAR FOCUS ON MANAGING CLIMATE CHANGE

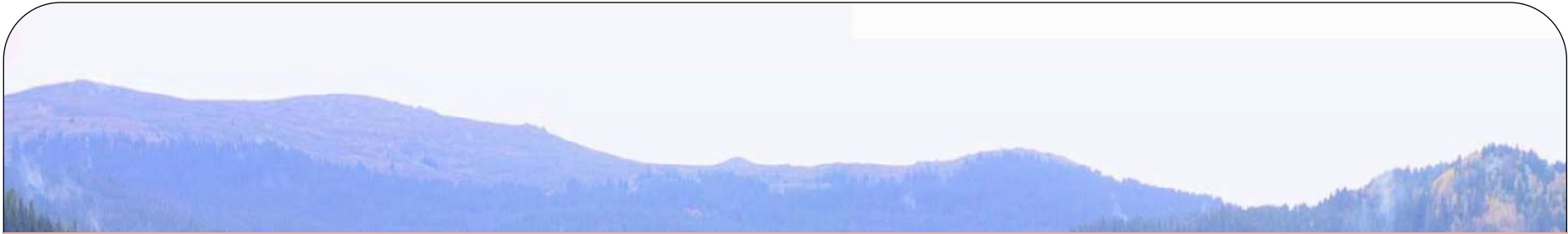
Measures Management Matrix

	TYPE OF MEASURES	On site	Around site	Network level
H	1. <i>Reduce existing pressures:</i>			
A	Restoration activities	X		
B	Increase the size of the protected area to minimise negative influences		X	
I	Development of buffer zones around protected area		X	
T	Development of green infrastructure - ecological corridors, ecotunnels or greenbridges between the protected areas			X
A	Reduce or eliminate external pollution sources		X	
T				
S	2. <i>Enhance ecosystems resilience:</i>			
	Maintenance and/or restoration of ecosystems	X		
	Establishment of zones with strict nature conservation regime	X		
	Monitoring of the process in and around Emerald site	X	X	
	Implementation of management actions in the forests, keeping dead wood in	X		

GUIDANCE FOR PRACTITIONERS ON CLIMATE CHANGE AND EFFECTIVE MANAGEMENT OF ECOLOGICAL NETWORKS, WITH A PARTICULAR FOCUS ON MANAGING CLIMATE CHANGE

Time Management Matrix

	URGENT	NOT URGENT
IMPORTANT	<p align="center">I</p> <p>Measures, related to climate changes, serious impediment that will be likely to act long time</p> <p>Measures, related to constraints / threats can be remove by the management of the site and it must take urgent adaptation and mitigation in this regard.</p> <p>Measures, related to potential climate changes within the site have an impact over the whole territory of the site.</p>	<p align="center">II</p> <p>Measures, related to the climate changes with potential impact of the site and its removal is important but can be reduced or controlled over time by the protected area management.</p> <p>Measures, related to potential climate changes within the site have an impact on discrete small areas, habitats and/or species in the site.</p>
NOT IMPORTANT	<p align="center">III</p> <p>Measures, related to potential climate changes within the site have an impact, generally or locally, under certain conditions.</p> <p>Measures, related to the removal of potential climate changes impacts not only by the Management body of the site, but it should take the initiative in this respect.</p>	<p align="center">IV</p> <p>Measures, related to climate changes with low potential impact – require additional research and involvement of more institutions and partners in order to undertake the necessary measures.</p>



Thank you for the attention!



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