Summary

Adapting to climate change in Bagnas coastal conservatory site

VULNERABILITY ASSESSMENT AND ADAPTATION PLAN SUMMARY

CONTEXT

Located on the Hérault coast, the Bagnas is a protected wetland, which is a national nature reserve (since 1983), a site of the Conservatoire du littoral and Natura 2000. The 743-hectare site is managed by ADENA, a nature conservation and awareness association with expertise in coastal wetlands. The Bagnas site concentrates a mosaic of natural environments of the Mediterranean coast (dunes, sansouïres, lagoons, reedbeds, etc.) which are home to numerous heritage species.

The LIFE Natur'Adapt project aims to integrate climate change issues into the management of protected areas. The Bagnas site (as a site of the Conservatoire du littoral) was selected with 14 other protected areas to participate in the test phase of the method developed. This document contains the summary of the vulnerability assessment and the adaptation plan of the Bagnas site in the face of climate change.

VULNERABILITY ASSESSMENT

The objective of the analysis is to understand climate change on the site and its possible impact on the natural heritage, management and socio-economic activities of the Bagnas.

The Mediterranean climate is characterised by mild winters, hot and sunny summers, and few and irregular rainy days. In the future, temperatures will continue to rise (+2°C in 2050 and up to +4°C in 2100, 19°C annual average). Annual rainfall forecasts are uncertain, as are forecasts for the flow of the Hérault River (a major source of fresh water for the Bagnas). However, it is expected to rain more in winter and a little less in summer, with longer periods without rain and drier soils. The sea level will continue to rise rapidly (up to +75 cm by 2100), saline intrusions underground and in the Hérault river will possibly increase, and coastal erosion will intensify. Finally, marine submersion, a direct threat to the site, will become more frequent.

- **Important point:** The hypothesis of permanent submersion of the Bagnas between now and 2030-2050 has been put forward (BRGM study in 2021), but the process leading up to this and the state of the site afterwards are not known at present. The Natur'Adapt method is therefore used to diagnose the site before permanent flooding; the reflection on the state of the site afterwards, for which there are too many unknowns, is initiated in the prospective narrative.

The impacts of climate change on the Bagnas site were assessed through 31 components selected for their determining character in the current management or their representativeness of the site: 19 natural heritage elements (habitats, groups and species), 6 management tools and means and 6 socio-economic activities. The non-climatic pressures impacting their presence or evolution were also identified. The Natur'Adapt method was used to evaluate the vulnerability or opportunity of each component to climate change.

The analysis shows that the components of the Bagnas are not equally vulnerable to climate change. The littoral zone is very vulnerable to marine climatic phenomena (erosion, submersion, saline intrusions, etc.). The high vulnerability of the permanent lagoon, the reed bed and the hydraulic management make the northern part of the Bagnas and its biodiversity also very vulnerable. In the southern part, on the other hand, certain habitats (sansouïre, temporary lagoon) could benefit from climate change in the short term. After permanent marine submersion, the prospective work is more based on suppositions about the possible future of the site. The majority of the elements that make up the current Bagnas are greatly threatened by such a hypothesis. Indeed, the permanent presence of salt water is incompatible with

the maintenance of many of the habitats, species, infrastructures, and other components of the Bagnas.

The findings of this diagnosis call for action to adapt the management of the site to the challenges of climate change. They also show the importance of acquiring more knowledge on the subjects addressed here, in particular on the phenomena of marine submersion.

ADAPTATION PLAN

In order to draw up this action plan, a global adaptation strategy was first thought out and decided upon, based on the results of the vulnerability assessment. It consists of maintaining the current biological diversity and ecological functions as best as possible, while adapting practices and looking for areas of retreat from the main issues. The analysis of current management practices completes this vision by highlighting what needs to change in current management. These elements are then cross-referenced with the results of the diagnosis (the most vulnerable components), which makes it possible to identify the site's challenges in relation to climate change:

- Functionality of the permanent lagoon and associated reed beds;
- Functionality of temporary lagoons and associated sansouïres;
- Functionality of dune and beach environments;
- Functionality of freshwater environments
- Management of the Bagnas site;
- Territorial anchoring.

Adaptation measures are then proposed and implemented according to these issues. To select the actions to be proposed, the existing measures for adapting management are first studied. The measures currently present in the management plan are also analysed and possibly retained or modified. As proposed by the Natur'Adapt method, questions are then asked about the possibility of reducing the vulnerability of the site's components. Finally, the manager's room for manoeuvre and limitations are considered. The adaptation measures finally proposed are management measures, studies or monitoring to be carried out, or communication/awareness measures. Many of these actions are already part of the site's management plan, but their objectives are often modified to integrate the context of climate change.

ENTIRE DOCUMENTS AVAILABLE HERE:

Vulnerability assessment (FR)

Adaptation plan (FR)