



# Ponderful

PONDS FOR CLIMATE



## Deliverable D4.1

Database of best practice for pondscape NbS for  
CC adaptation and mitigation

Pond Ecosystems for Resilient Future  
Landscapes in a Changing Climate



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# Ponderful

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## Executive Summary

There are many scattered initiatives to create, restore and manage ponds (small water bodies), however there is insufficient knowledge on how to use ponds and pondsapes (networks of ponds) as Nature-based Solutions (NbS) to increase the resilience of ecosystems and society to climate change. Thus, our goal was to build an inventory (database) of NbS actions in ponds and pondsapes in a diversity of social-ecological settings, to assess the best practices for pond/pondsapes creation, restoration, and management. Particularly, we focused on the NbS actions that promote biodiversity while addressing societal challenges directly or indirectly linked to climate change, and delivery of other important Nature's Contributions to People (NCPs, i.e., contributions of living nature to the quality of life for people). To achieve this task, we formulated an online questionnaire that asked for general (e.g., number of ponds, area of the pondscape, etc.) and specific (e.g., costs of the action, stakeholders involved, etc.) information on the NbS action implemented, and on the associated NCPs. The NCPs are, for instance, *Habitat creation for biodiversity*, *Regulation of climate*, *Learning and inspiration* or *Physical and physiological experiences*. The database contains information that was gathered by sharing the mentioned questionnaire with stakeholders relevant for ponds, and by searching existing information in research papers, and relevant web pages and platforms. Currently, our database comprises 167 examples of NbS actions implemented in ponds and pondsapes in Europe and other countries beyond Europe such as Uruguay. These 167 NbS actions were implemented in 94 ponds or pondsapes from 24 countries. Pond/pondscape creation was the most frequently implemented action (n=77) followed by management actions (n=52) (i.e., infrastructure measures, actions within the pond, and land use actions), and restoration actions (n=38). Besides the NCP *Creation of habitat for biodiversity*, the most acknowledged NCPs associated with the NbS actions were *Physical and physiological experiences* and *Learning and inspiration experiences*. *Regulation of the climate* was rarely cited as a targeted NCP, underlining the lack of knowledge on this topic, a gap that will be addressed by the scientific work conducted by PONDERFUL. The database will be made internationally open (e.g., Oppla platform: EU Repository of Nature-based Solutions) to stimulate the replication of good examples.

# Introduction

Ponds and pondscapes (networks of ponds at the landscape scale; see description of the key concepts in BOX 1) are biodiversity hotspots and stepping stones ecosystems, which deliver multiple ecosystem services<sup>1</sup>. Ponds are facing the same threats as larger waters (e.g., land and water use, pollution, invasive species), and are particularly vulnerable to climate change (CC)<sup>2</sup>. However, there is insufficient knowledge on how to create, restore and manage ponds/pondscapes to maximise their role as Nature-based Solutions (NbS, BOX 1) to increase the resilience of ecosystems and society to climate change. The aim of this deliverable was to create a database of pond/pondscape NbS actions (creation, restoration, and management), which will be used to identify the best practices for the implementation of pond/pondscape as NbS considering their associated Nature's contributions to people (NCPs, BOX 1). We focused on the pond/pondscape NbS that promote biodiversity while addressing societal challenges related to climate change (e.g., *Regulation of water quality and quantity, Flood control, Food and feed, Regulation of climate*). To create the database, we actively searched for relevant study cases in research papers, we explored the “grey” literature and relevant websites and platforms, and we built a questionnaire that was spread across the international stakeholder’s community (see methods for more detailed information). The database mainly focuses on NbS actions from Europe (EU) and Uruguay, and study cases range from the pond (local NbS) to the pondscape scale (landscape NbS). For example, the database includes information on the pond/pondscape, such as: i) number/size of ponds and pondscapes, ii) dominant land cover, iii) percentage of protection (e.g., nature reserve), iv) stakeholders involved in the NbS implementation, v) the type of NbS (pond/pondscape creation, restoration, and management) implemented, vi) information on costs and benefits of the NbS, and vii) information on the NCPs associated to the NbS action implemented. In a second step, the NbS actions gathered in the present database that comply with the quality standards (e.g., IUCN - International Union for Conservation of Nature and EC - European Commission) will be evaluated and ranked to identify those suitable for wider application (D4.2). This report presents a preliminary general analysis of the NbS actions implemented in ponds/pondscapes and related NCPs, provides access to the database, and a guidance of the future steps related to the evaluation, dissemination, and application of the inventory (D4.2).

## **BOX 1. Key concepts**

A *pond* is a small standing water (in contrast to larger water bodies referred to as lakes). Surface area of ponds can vary from less than 1 m<sup>2</sup> to several hectares. Different upper surface areas have been proposed, often about 1-5 ha, sometimes more (e.g., Ramsar Convention: 8 ha). Ponds can vary strongly in terms of their ecology: being permanent, seasonal or ephemeral, man-made or naturally created. Most ponds are shallow and

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<sup>1</sup> Williams P. et al. 2004 Biol Conserv 115:329-341; Davies B.R. 2008 Agric Ecosyst Environ 125:1-8; Holgerson, M.A., et al. 2016 Nature Geoscience 9, 222-226.

<sup>2</sup> Gozlan, R.E. et al. 2019 Inland Waters. 9(1):78-9; Biggs, J. et al. 2017 Hydrobiologia 793:3-39.



therefore lack a stable stratification.

A pondscape is a landscape including a congregation of ponds with spatial proximity (“connectedness”) that potentially influences local species persistence and community structure<sup>3</sup>. Regular or sporadic exchange of species from one pond to another in the pondscape can increase local diversity, buffer for species extinction due to chance or local disturbances, and thus influence community structure. The boundaries of a pondscape may vary and may be determined by physical or ecological settings (a valley, a catchment, a set of ponds in a nature reserve) or even determined by societal or political criteria (urban ponds, provincial or national boundaries). Connectedness in a given pondscape is a function of ecological differences among ponds, the terrestrial matrix (facilitating or impeding dispersal) and dispersal capacity of the organisms, and thus also depends on the taxonomic group considered. The total surface area covered by a pondscape can strongly vary.

*Nature-based Solutions (NbS)* are defined by the International Union for Conservation of Nature (IUCN) as *actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.*

*Nature's contributions to people (NCP)* are all the contributions, both positive and negative, of living nature (i.e., all organisms, ecosystems, and their associated ecological and evolutionary processes) to people's quality of life. Beneficial contributions include e.g., food provision, water purification, flood control, and artistic inspiration, whereas detrimental contributions include disease transmission and predation that damages people or their assets. NCP may be perceived as benefits or detriments depending on the cultural, temporal or spatial context<sup>4</sup>. IPBES<sup>5</sup> considers a gradient of approaches to NCP, ranging from a purely generalizing approach to a purely context-specific one.

## Methods

Three different approaches were used to obtain information on NbS actions implemented in ponds/pondscapes and their associated NCPs to build the database:

1. The search for information in research papers.
2. The search for information on web pages such as <https://oppla.eu>, <https://renature-project.eu>, <https://climate-adapt.eea.europa.eu>, <https://una.city>.
3. The development of a user-friendly online questionnaire (Appendix 1) on NbS implemented in ponds/pondscapes and associated NCPs, which was shared with PONDERFUL members and pond Stakeholders in the form of a survey through the platform Survey Monkey.

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<sup>3</sup> Boothby, J. 1997. Aquatic Conserv: Mar. Freshwater Ecosystems. 7:127-132.

<sup>4</sup> Díaz S. et al. 2018. Science. 359(6373):270-272.

<sup>5</sup> Rounsevell, M. et al. 2018. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).



## 3.1 Questionnaire

The questionnaire (Appendix 1) was structured in sections, the respondents were asked about their chosen example of NbS actions implemented, that could be a (i) Pond/pondscape creation, or a (ii) Pond/pondscape restoration, or a (iii) Pond/pondscape management (Table 1).

**Table 1. NATURE BASED SOLUTIONS (NbS) definitions**

|   |
|---|
| <p><b>1. Pond/pondscape creation</b><br/>         Creating one or several ponds in a site where there was formerly no waterbody.</p>  |
| <p><b>2. Pond/pondscape restoration</b><br/>         Any kind of measure to restore ponds that are damaged or lost. e.g., digging a pond in a place where formerly a pond was existing; regenerating a landfilled pond; undertaking important transformations on an existing pond that was functionally lost (e.g., depth, morphometry, slopes, shoreline design, flora, or fauna)</p>  |
| <p><b>3. Pond/pondscape management</b><br/>         Three types of actions: a) pond infrastructure measures (actions on areas immediately surrounding a pond/s), b) pond management measures (actions within pond/s) and c) land-use actions that are needed to ensure the appropriate functioning of a pondscape; e.g., removing some vegetation or tree shade, removing or introducing species, water management, etc. They can be local (pond scale, e.g., small-scale) or regional (pondscape, e.g., large-scale), or both.</p> |

The respondents needed to have at least one of these NbS (i/ii/iii) actions implemented in the pondscape and include information about the following NCPs (Table 2) associated with the NbS action.

**Table 2. Description of the Nature Contributions to People (NCP)<sup>6</sup>.**

| <i>Nature Contributions to people (NCP)</i> | <i>Definitions based on Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)<sup>7</sup></i>   |
|---|---|
| <i>Creation of habitat for biodiversity</i> | Formation and continued production of habitats for biodiversity. In the case of pondscapes, examples are e.g., growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds, and butterflies; nurseries for juvenile stages of fish, etc. |
| <i>Pollination</i>                          | The facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae, or spores   |
| <i>Regulation of climate</i>                | The climate regulation by ecosystems (including regulation of global warming). It can be produced through i) positive or negative effects on emissions of greenhouse gases (e.g., biological carbon storage and   |

<sup>6</sup> Díaz S. et al. 2018. *Science*.359(6373):270-272.

<sup>7</sup> Rounsevell, M. et al. 2018. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

|  |   |
|--|---|
|  | sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants  |
| <i>Regulation of water quantity, location and timing</i> | i) regulation, by ponds, of the quantity, location, and timing of the flow of surface and groundwater; ii) regulation of flow to water dependent natural habitats; and iii) modification of groundwater levels  |
| <i>Regulation of water quality</i>                       | The influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals   |
| <i>Regulation of hazards and extreme events</i>          | The potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.  |
| Food and feed  | i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g., livestock, work and support animals, pets) or for aquaculture, from the same sources   |
| <i>Physical and physiological experiences</i>            | The provision by ponds/pondscapes of opportunities for physically and physiologically beneficial activities, healing, relaxation, recreation, leisure, tourism, and aesthetic enjoyment based on the close contact with nature (e.g., hiking, recreational hunting and fishing, birdwatching, snorkelling, diving, gardening)   |
| <i>Learning and inspiration experiences</i>              | The provision by ponds/pondscapes of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g., biomimicry)  |
| <i>Supporting identities</i>                             | The ponds/pondscapes being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds/pondscapes, and iii) source of satisfaction derived from knowing that a particular pond/pondscape exists |
| <i>Maintenance of options</i>                            | The capacity of ponds/pondscapes to keep options open to support a good quality of life. For example,   |

|  |  |
|--|--|
|  | benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations, and genotypes, including their contributions to the resilience and resistance of pond/pondscape properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondscapes. |
|--|--|

### 3.1.1 Structure of the questionnaire

The structure of the questionnaire (see Appendix 1 for details) was as follows:

Questions 1 to 11: general questions

Questions 12 to 21: **NbS = pond/s creation**

By responding "No" to a particular type of NbS, the respondent would skip all the questions regarding this NbS.

Questions 22 to 98: questions focused on different NCPs that the pond/s created might have contributed to.

**Most questions could be skipped, the respondent was asked to choose among 11 NCP options:**

1. *Creating habitat for biodiversity* (questions 22 to 28)
2. *Pollination* (questions 29 to 35)
3. *Regulation of climate* (questions 36 to 42)
4. *Regulation of water quantity, location and timing* (questions 43 to 49)
5. *Regulation of water quality* (questions 50 to 56)
6. *Regulation of hazards and extreme events* (questions 57 to 63)
7. *Food and feed* (questions 64 to 70)
8. *Physical and physiological experiences* (questions 71 to 77)
9. *Learning and inspiration experiences* (questions 78 to 84)
10. *Supporting identities* (questions 85 to 91)
11. *Maintenance of options* (questions 92 to 98)

Questions 99 to 102: general questions, references, contributor information, etc

Questions 103 to 284: if the respondent created more than one pond or set of ponds with another purpose (different NCP), they could provide information about that NbS action. The questions were the same as above (questions 22 to 98) and the respondent could skip most of the questions just answering the ones connected to the NCP options related to the specific ponds/s creation.

The same structure described above was repeated for the other two NbS actions, i.e., **Pond/s restoration or Pond/pondscape management, with three options: i) pond infrastructure measures, ii) pond management measures (actions within pond/s) and iii) land-use actions.**

Questions 650 to 662: **THIS SECTION WAS OPTIONAL: Quantitative indicators for assessing different NCPs**

The estimated duration of the questionnaire was 40 minutes. The exact duration depended on the number of NbS implemented in the pondscape that the respondent provided information about.

### 3.1.2 Dissemination of the questionnaire

Stakeholders' involvement is key to achieve PONDERFUL objectives, not least task 4.1. The knowledge on specific definitions and vocabulary related to NbS and NCPs are somehow complicated to some stakeholders. Therefore, different approaches and tools were developed to address these issues. We developed a guide (Appendix 2) and a video (Appendix 3) to navigate the survey as tools to help respondents. In this way, we provided them with background, definitions, and examples to answer the questionnaire successfully. Moreover, virtual meetings were held with stakeholders, scientists and other people that have implemented NbS actions in ponds to directly help them to complete the survey.

Different channels were used to disseminate the questionnaire (PONDERFUL Newsletter, twitter and Instagram, personal letters to stakeholders and scientists, OPPLA and Network Nature, NbS Taskforces (via TF4), NbS newsletter, SIL-International Society of Limnology website, newsletter and social media, AIL- Asociación Ibérica de Limnología website, newsletter and social media, UVic-UCC social media, LIFE Wetlands4Climate project email list, Fundación Global Nature, MetWet project email list, EPCN - European Pond Conservation Network email list, EPCN summer seminar 2022 <https://www.europeanponds.org/epcn-summer-seminar>, and British Ecological Society - BES Aquatic meeting 2022 <https://www.britishecologicalsociety.org/event/aquatic-ecology-annual-meeting/>). Additionally, all collaborators spread the survey through their networks and known significant stakeholders.

### 3.1.3 Quality control

At this stage, all responses in the questionnaire have been carefully checked. When the information reported was not clear enough (e.g., different names for the same pondscape, no explanation of the implemented NbS, no indication of the NCPs, etc.), we contacted the respondents to clarify their responses. If the clarification was still not conclusive, that entrance in the database was disregarded.

In a second step (D4.2, August 2023), NbS actions included in the database will be analysed to identify the *best practices*, ensuring that they comply with the quality standards outlined by IUCN and EC.

To guarantee the anonymity of personal data, we removed from the NbS database all the fields containing personal information (name of the respondent, email, address, etc.), in addition to the spatial coordinates of the ponds/pondscapes.

## 3.2. Metadata

The metadata (Table 3) and the NbS database are hosted by the PONDERFUL information system (IS), with access through credentials until the *Report focused on ES*

and NbS (D4.2) is finalised. Then, both the metadata and NbS database will be open access to the international public. Meanwhile, the metadata is open access through the general-purpose open repository Zenodo developed under the European OpenAIRE program and operated by CERN.

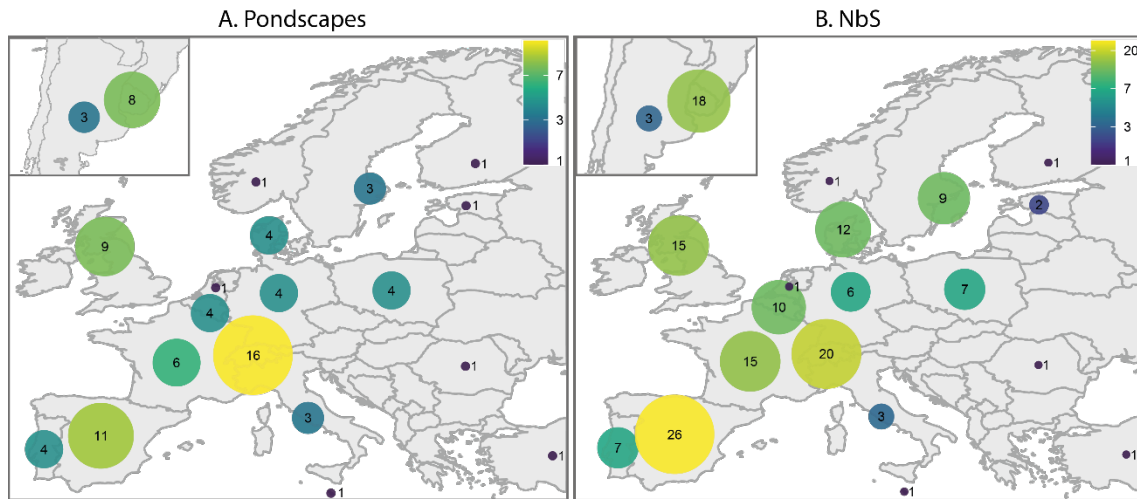
**Table 3. Metadata about the NbS database**

|                   |  |
|-------------------|--|
| Title             | Database of best practice for pondscape NbS for CC adaptation and mitigation   |
| Date of uploading | 29/11/2022   |
| Contributor       | <p><b>Authors:</b><br/>Mireia Bartrons (UVic-UCC), Carolina Trochine (UVic-UCC), Beat Oertli (HES-SO), Sandra Brucet (UVic-UCC &amp; ICREA)</p> <p><b>Contributors:</b><br/>Malgorzata Blicharska (UU), Hugh McDonald (ECOLOGIC), Isabel Seeger (ECOLOGIC), Manuel Lago (ECOLOGIC) and Pascale Nicolet (FHT).</p> <p><b>Questionnaire contributors:</b><br/>Meryem Beklioğlu, Lluís Benejam, Jeremy Biggs, Aurélie Boissezon, Dani Boix, Thomas Alexander Davidson, Julie Fahy, Pieter Lemmens, Mariana Meerhoff, Thomas Mehner, Marzena Rasmussen, Joël Robin, Carl Sayer, José Teixeira, Federico Amarilla, Oriol Baena-Crespo, Lujan Barrancos, Ivan Bashinskiy, Pere Buixeda, Daniel Carrillo Martín, Gerard Carrion Salip, Valérie Collaud, Maite Colina, Florencia Cuassolo, Ninon Chinal, Jean-Baptiste Decotte, Marine Decrey, Eliane Demierre, Raúl Domínguez, Ricard Font, Ona Font Rifà, Cecilia González, Jules Hornung, Carla Juvinyà, Louis-Marie Le Fer, Lukas Lawrenz, Stefan Lorenz, Adrien Messean, Susanna Meyer, Martin Nissen Noergaard, Llorenç Pascua, Eduardo Antonio Parera Sá, Sopan Patil, Jerome Pellet, Diego Pereira Lindoso, Santiago Poch Cartañá, Rui Rebelo, Ditte Rens, Udo Schwarzer, Margarida Silva, Christopher Spray, John Strand, Mélissa Toussaint, Anja Sørensen, Louisa-Marie von Plüskow, Will Watson, Robby Wijns.</p> |
| Language          | English  |
| Description       | <p>We built an inventory (database) of Nature-based Solutions (NbS) actions (creation, restoration, and management) in ponds and pondscales (ponds at the landscape scale) in a diversity of social-ecological settings to assess the best practices. We formulated an online questionnaire that was shared with pond stakeholders. The questionnaire asked general (e.g., number of ponds, area of the pondscape, etc.) and specific (e.g., costs of the action, stakeholders involved, etc.) information on the NbS action implemented, and on 11 associated Nature's Contributions to People (NCPs). Among the NCPs we included, for instance, <i>Habitat creation for biodiversity</i>, <i>Regulation of climate</i>, <i>Learning or physical and physiological experiences</i>. The database contains information gathered through</p>  |

|                   |  |
|-------------------|--|
|                   | the questionnaire, research papers and relevant web pages and platforms.   |
| License           | CC-BY v4.0   |
| Keywords          | Pond, pondscape, Nature-based Solutions, Nature's Contributions to People, Creation, Restoration, Management   |
| Lineage           | We used three different approaches to obtain information on NbS actions implemented in ponds/pondscapes and the associated NCPs mainly focusing on Europe and Uruguay: 1) the search of information in research papers; 2) the search of information on web pages such as <a href="https://oppla.eu">https://oppla.eu</a> , <a href="https://renature-project.eu">https://renature-project.eu</a> , <a href="https://climate-adapt.eea.europa.eu">https://climate-adapt.eea.europa.eu</a> , <a href="https://una.city">https://una.city</a> ; and 3) the development of a user-friendly online questionnaire on NbS implemented in ponds/pondscapes and associated NCPs, which was shared in the form of a survey through the platform Survey Monkey with PONDERFUL members and pond Stakeholders. We requested permissions from the respondents to make the data available. |
| Responsible party | UVic-UCC<br>Mireia Bartrons (mireia.bartrons@uvic.cat)<br>Carolina Trochine (carolina.trochine@uvic.cat)   |

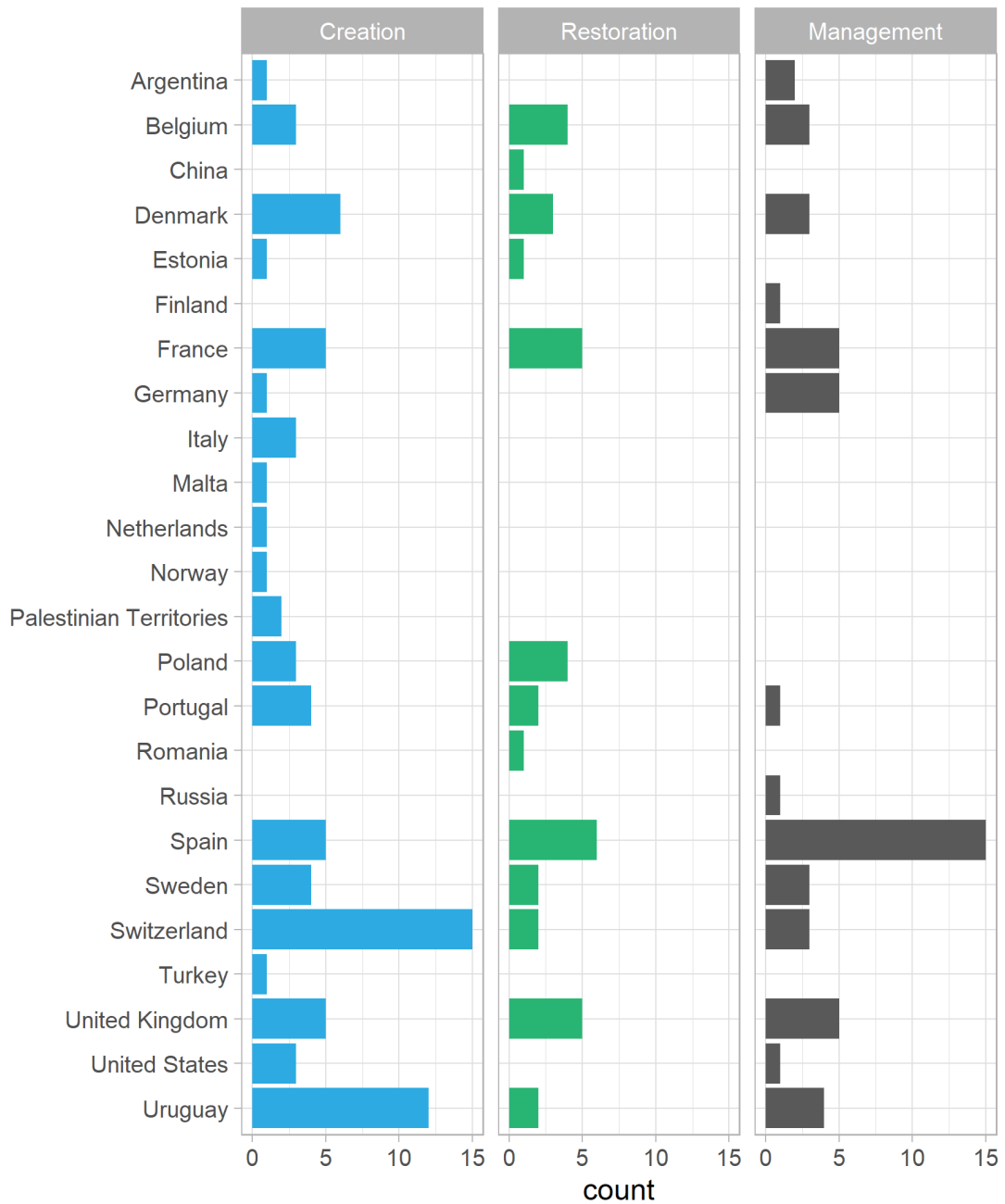
## Results

Our database comprised examples of NbS actions implemented in ponds/pondscapes mainly from Europe and Uruguay (Figure 1), but also from other countries (Figure 2). Particularly, the inventory contains information of 167 NbS from 94 case studies (ponds/pondscapes) in 24 countries. Ponds/pondscapes creation were the most frequent NbS actions (n=77), followed by management actions (n=52) (i.e., infrastructure measures, actions within the pond, and land use actions), and restoration actions (n = 38) (Table 3).



**Figure 1. Number of ponds (A) and number of NbS actions implemented in ponds/pondscapes (B) of Europe and South America. The range of colours and sizes of the circles are related to the number of ponds (A) or NbS actions implemented (B) in each country (blue/small: low number of cases to yellow/large: up to 26 cases)**



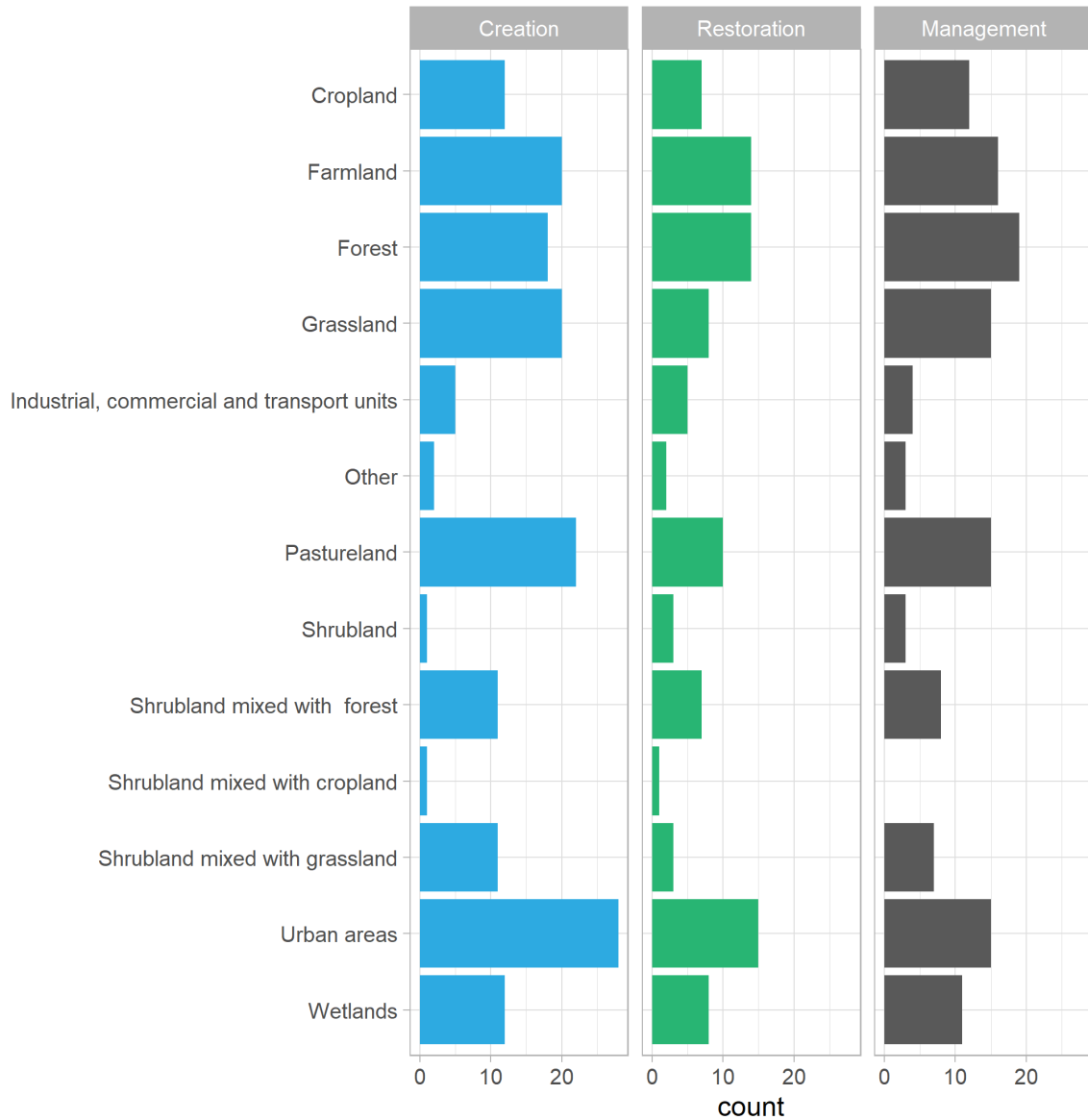


**Figure 2. Number of NbS actions (creation, restoration and management) in each country**

**Table 3. Total number of NbS actions implemented in the 93 case studies (ponds/pondscapes)**

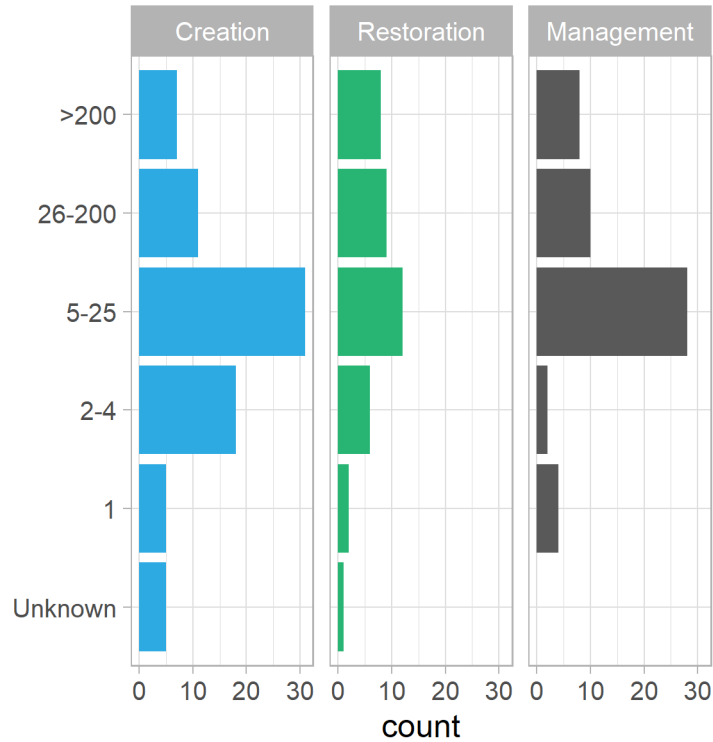
| NbS          | Number     |
|--------------|------------|
| Creation     | 77         |
| Restoration  | 38         |
| Management   | 52         |
| <b>Total</b> | <b>167</b> |

The dominant land cover (i.e., the land cover that appeared most frequently) across the pondscales of the database according to CORINE land cover (CLC) nomenclature from the European Environment Agency were urban areas (n=28) and pastureland (n=22) for the NbS pondscape creation; urban areas (n=15), forest (n=14) and farmland (n=14) for the NbS pondscape restoration; and forest (n=19) and farmland (n=16) for the NbS pondscape management (Figure 3).



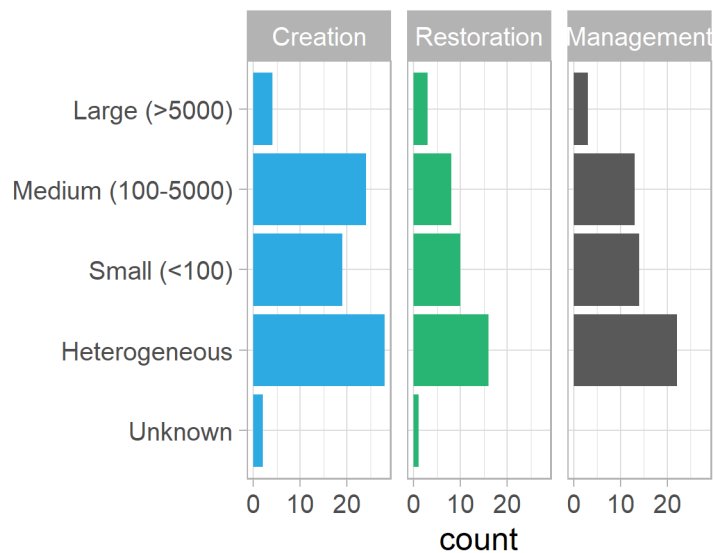
**Figure 3. Dominant land cover across each pond/pondscape per each NbS action (creation, restoration, and management)**

Most pondscales had between 5 and 25 ponds, with a tendency of having a greater number of ponds when the action implemented was restoration compared to creation and management actions (Figure 4).



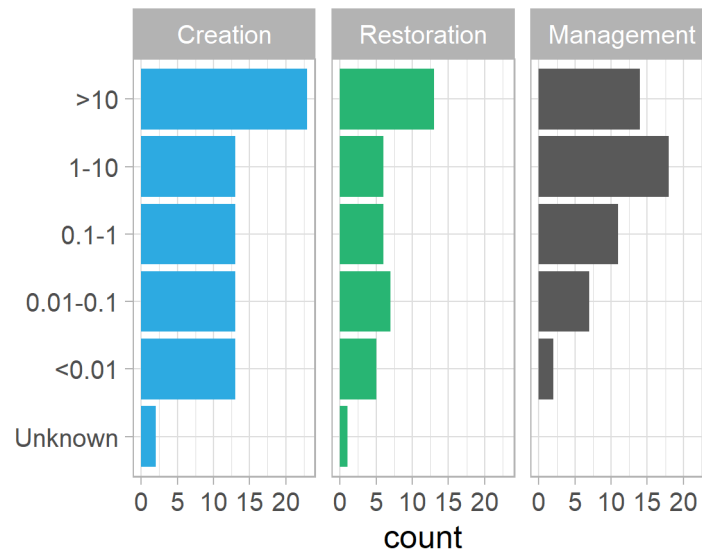
**Figure 4. Number of ponds in pondscape per each NbS (creation, restoration and management)**

Most pondscares (40%) had heterogeneous (e.g., from small, <100 m<sup>2</sup>, to large, >5000 m<sup>2</sup>) size ponds, the trend is similar for pond/pondscape creation, restoration, and management (Figure 5).



**Figure 5. Size of the ponds in the pondscape (in m<sup>2</sup>) per each NbS action (creation, restoration, and management)**

The approximated surface area of the pondscape was usually very large (>10 km<sup>2</sup>) when pond/pondscapes were created or restored, and large (1-10 km<sup>2</sup>) when ponds were managed (Figure 6).



**Figure 6. Area of pondscape per NbS action**

The eleven NCPs evaluated evidenced that the NbS actions implemented in ponds/pondscapes provided benefits for biodiversity and, simultaneously, to other NCPs related to human wellbeing. Besides *Habitat creation for biodiversity*, the most acknowledged NCPs associated with the implementation of the NbS actions were *Physical and physiological experiences* and *Learning and inspiration experiences*. Additionally, *Regulation of water quantity, location and timing* and *Provision of food and feed* were also commonly selected as objectives when pond/pondscapes were created; while *Regulation of water quality* was also a targeted NCP when pond/pondscapes were restored or managed. Most case studies (ponds/pondscapes) in the database did not show the NCP *Regulation of climate* as a target for the implementation of the action.

## Conclusions

Our database contains information on 167 NbS actions of pond/pondscape creation, restoration, and management mainly coming from countries covered by PONDERRFUL project but also from several other countries. Pond/pondscape creation were the most represented NbS action compared to pond/pondscape management and restoration. Most NbS actions were implemented in pondscales that had between 5 and 25 ponds, and they were usually implemented in ponds with heterogeneous sizes. The NbS actions were mostly implemented in large (1-10 km<sup>2</sup>) pondscales when the NbS action was about management, and in very large (>10 km<sup>2</sup>) pondscales when the NbS action was creation or restoration. NbS actions were implemented in ponds/pondscapes with a variety of land covers.

The information on the NCPs indicated that the implementation of the NbS actions provides benefits for biodiversity and, simultaneously, for other services (e.g., water supply for cattle, irrigation, flood risk reduction, fish production, leisure, learning experiences). Most respondents of the questionnaire did not indicate the NCP *Regulation of climate* as a target for the implementation of the NbS actions.

Accordingly, PONDERFUL project is working to assess this information through the established 8 demo sites (20 pondscape). The inventory will be used to identify the *best practices* in the implementation of pond/pondscape NbS actions to promote biodiversity while addressing societal challenges related to climate change (D4.2). The database will be made internationally available through the PONDERFUL IS, and the most relevant new cases will be published in open access repositories, e.g., the Oppla EU Repository of Nature-Based Solutions, to stimulate the replication of good examples of ponds and pondscape NbS actions.



# Ponderful



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## Pond Ecosystems for Resilient Future Landscapes in a Changing Climate

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No ID 869296

## Appendix 1



## 1. Welcome to the Survey

You are invited to respond to this questionnaire about the use of ponds as Nature-based Solutions (NbS)\* in the landscapes, also called pondscape. The questionnaire is part of the PONDERFUL project: Pond Ecosystems for Resilient Future Landscapes in a Changing Climate, which has received funding from the European Union's Horizon 2020 (H2020) research and innovation programme under grant agreement No ID 869296.

There are many scattered initiatives to create, restore and manage ponds across Europe. The aim of this questionnaire is to evaluate the role of these schemes as NbS for climate change adaptation, from the pond scale (local NbS) to the pondscape scale (landscape NbS).

### Nature Contribution to Peoples (NCP)\*\*

Specifically, here you are asked to provide one example of a NbS implemented in your pondscape, an example that you consider as particularly important and potentially of interest for other regions in Europe. This often will be pond/pondscape creation or pond/pondscape restoration. But it could also be pond/pondscape management, including pond infrastructure measures, pond management measures and land-use actions on the pondscape. You are asked also to indicate which Nature's Contribution to People (NCP\*\* or Ecosystem Services) are potentially provided by your example of implemented NbS.

The questionnaire is extensive because it includes the three types of NbS and 11 NCP but you are only required to respond to the section related with the NbS implemented in your pondscape and the associated NCP. By responding "No" to a particular type of NbS, you will skip all the questions regarding this NbS. The estimated duration of the questionnaire is approximately 30 minutes: the exact duration will depend on the number of most successful NbS implemented in your pondscape.

The results of the survey will be used exclusively for the purpose of the PONDERFUL project. A report and a scientific publication will be available to the stakeholders and all contributors. If you wish, your name will be added as contributor in the PONDERFUL project deliverable, and in the acknowledgements of the scientific publication. You will be asked about these possibilities during the questionnaire.

Furthermore, a database of "case-studies" in NBS implementation will be made publicly available in 2023 and can potentially include your NBS (with your agreement).

The questionnaire is written in English, but if needed, you can open it through a translator (cf. <https://www.deepl.com/>) to support you as well.

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\*Nature-based Solutions (NbS) are defined by IUCN as "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits".

\*\*Nature's contributions to people (NCP) are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people".

\* 1. What is your contact information?

Name

Surname

Institution/Company

Country

Email Address

Phone Number

\* 2. By responding to the survey, I consent the processing of my personal data by the PONDERFUL project researchers and I am aware that the data will only be used for scientific purposes, in an anonymous way, and the results will only be presented in an aggregated form, so it will not be possible to identify data linked to particular people.

*The data gathered through this questionnaire will be treated in line with the requirements of the EU Regulation on the protection of natural persons with regard to the processing of personal data (GDPR; Regulation 2016/679; in force in Sweden from 25th of May 2018).*

Yes

No

## 2. Pondscape general information

The survey is to be filled out in relation to the pondscape where NbS have been implemented.

**Definition of a pondscape used in the H2020 PONDERFUL project:** A pondscape is a landscape including a congregation of ponds, which are either located in spatial proximity or directly connected to each other. Pondscales can sustain populations of different species. Where to draw the boundaries of a pondscape depends on the aspects considered: It may be based on the dispersal potential of certain taxonomic groups living in the pondscape (e.g. plants, mollusks, dragonflies, reptiles, birds), on the land use (e.g. forest, meadows, urban area) or the management structure (e.g. nature reserve, municipal land).

The area can therefore be various, and for example the pondscales considered in DEMO-sites in PONDERFUL have a median area of 2.8 km<sup>2</sup> (minimal: 0.1 km<sup>2</sup> and maximal: 30 km<sup>2</sup>)

**Definition of a pond used in the H2020 PONDERFUL project:** A pond is a standing waterbody with a surface area between 1 m<sup>2</sup> and 5 ha. Their depth ranges from a few centimeters to several meters. Ponds can be permanent and hold water all year round, or be temporary and only hold water in some parts of the year. Some ponds are man-made, whereas others are natural in origin.

\* 3. What is the name of your pondscape?

\* 4. How many ponds are present in the pondscape?

*If you do not know the exact number, you can indicate an approximate number.*

- 1
- 2-4
- 5-25
- 26-200
- >200
- Unknown

Exact value (only if the info is available)

\* 5. What is the size of the ponds in the pondscape (in m<sup>2</sup>)?

- Heterogeneous, from small (e.g. 1-10 m<sup>2</sup>) to large (e.g. 10000m<sup>2</sup>)
- Most are small (< 100 m<sup>2</sup>)
- Most are medium sized (e.g. 500 – 5000 m<sup>2</sup>)
- Most are large (e.g. > 5000 m<sup>2</sup>)
- Unknown

\* 6. What is the approximated surface area of the pondscape (in km<sup>2</sup>)?

- Very small (< 0.01 km<sup>2</sup>)
- Small (0.01 to 0.1 km<sup>2</sup>)
- Medium sized (0.1 to 1 km<sup>2</sup>)
- Large (1 to 10 km<sup>2</sup>)
- Very large (> 10 km<sup>2</sup>)
- Unknown

Exact value (only if available)

\* 7. What is the dominant land cover (i.e. the land cover that appears most frequently) across the pondscape? If needed, you can select more than one category

CORINE land cover (CLC) nomenclature, European Environment Agency

- Cropland
- Farmland
- Forest
- Grassland
- Pastureland
- Shrubland
- Shrubland mixed with forest
- Shrubland mixed with cropland
- Shrubland mixed with grassland
- Wetlands
- Urban areas
- Industrial, commercial and transport units
- Other (please specify)

8. About what percentage of the pondscape is protected (e.g. nature reserve)?

9. What is the latitude and longitude (in decimal degrees, WGS 84, e.g. 41.390205 and 2.154007) of the central point of the pondscape?

Latitude

Longitude

If unknown, provide indication that can help us to localize the pondscape: name of nearest town, etc.

\* 10. In what country is the pondscape located?

11. Could you share a photograph of your pondscape (or a typical pond)? Please, upload it here:

Choose File

Choose File

No file chosen

### 3. Pond/pondscape creation

In the following sections, you will be asked about your chosen example of NbS implemented, that can be a (i) Pond/pondscape creation, or a (ii) Pond/pondscape restoration, or a (iii) Pond/pondscape management. You need to have at least one of these NbS (i/ii/iii) implemented in your pondscape.

You will also be asked about a selection of Nature's contributions to people (NCP) provided by this NbS.

By responding "No" to a particular type of NbS, you will skip all the questions regarding this NbS.

\* 12. Is your chosen example of NbS the creation of a pond or several ponds in your pondscape?

*e.g. creating one or several ponds in a site where there was formerly no waterbody.*

*It can be, for example, the pond that you consider the most important or a set of ponds that was/were created with the same purpose.*

Yes

No

#### 4. Pond/pondscape creation

The following questions concern the NbS "Pond/Pondscape creation" (you responded "yes" in section 3). It relates to a pond or a set of ponds that was/were created with the same purpose (= one NbS) in a site where there was formerly no waterbody. At the end of this section, you will be asked whether you would like to provide another example of NbS, in case there were other ponds or set of ponds created in the same pondscape with other purpose.

\* 13. What was done exactly, e.g. number of ponds created, purpose (e.g. leisure, biodiversity)? (max 5000 characters)

14. What was the dominant land cover before the pond/s was/were created?

Select the land cover that appeared most frequently in the landscape where the pond/s was/were created.  
*CORINE land cover (CLC) nomenclature, European Environment Agency*

- Cropland
- Farmland
- Forest
- Grassland
- Pastureland
- Shrubland
- Shrubland mixed with forest
- Shrubland mixed with cropland
- Shrubland mixed with grassland
- Wetlands
- Urban areas
- Industrial, commercial and transport units
- Other (please specify)

15. In what year the negotiation for the creation of the pond/s (e.g. political negotiations/site permissions, etc.) and/or the practical creation of the pond started? Enter 4-digit birth year; for example, 2005

Comment (if needed)



16. Which was the timeframe for the negotiation for the creation of the pond/s (e.g. political negotiations/site permissions, etc.), from the idea to the establishment? Please enter the number of months; for example, 3.

Comment (if needed)

17. How long did it take to create the pond/s in practice (e.g. digging...)? Please enter the number of months; for example, 3.

Comment (if needed)

18. What kind of stakeholders were involved in the creation of the pond/s and in which way?

*Skip this stage if you don't have this information.*

Formal involvement (e.g. management, formal decision making, etc.)

Informal role (e.g. volunteer, user, etc.)

Civil society: citizens and representatives of active associations

Policy maker: a person responsible for or involved in formulating policies, especially in politics.

Public sector (not policy maker): governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programs, goods, or services

Private sector: for-profit businesses run by individuals or companies

Scientific

19. How much money, in Euros, did the creation of the pond/s cost?

*e.g. design, land acquisition/rent, insurance and legal fees, equipment rent/ purchase, construction cost, etc.*

*Skip this stage if you don't have this information.*

20. Give a description of the costs provided in the previous question (max 1000 characters)

*Skip this stage if you don't have this information.*

21. Is/are the pond/s generating any revenue?

*Skip this stage if you don't have this information.*

- Yes
- No
- If yes, how much per year? (in Euros/year)

22. The following questions focus on different Nature's contributions to people (NCP\*) that the pond/s created might have contributed to.

*\*NCP are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people*

Was the "creating habitat for biodiversity" NCP the objective when creating this/these pond/s?

*The NCP "creating habitat for biodiversity" refers to the formation and continued production of habitats for biodiversity. In the case of pondscapes, examples are e.g. growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds and butterflies; nurseries for juvenile stages of fish, etc.*

- Yes
- No

## 5. Pond/s creation - "creating habitat for biodiversity" NCP

23. To what degree was the "creating habitat for biodiversity" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

24. How effective this/these pond/s are at creating habitat for biodiversity?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

25. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

26. Does creating this/these pond/s with the objective of creating habitat for biodiversity negatively influence the delivery of any other NCPs?

- Many negative influences on other NCPs
- Some negative influences on other NCPs
- No negative influences on other NCPs
- Unknown

27. If you have confirmed a negative influence of creating this/these pond/s with the objective of creating habitat for biodiversity on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

28. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the creation of habitat for biodiversity on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 6. Pond/s creation - "pollination" NCP

\* 29. Was the "pollination" NCP the objective when creating this/these pond/s?

*The NCP "Pollination" refers to the facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae or spores*

Yes

No

## 7. Pond/s creation - "pollination" NCP

30. To what degree was the "pollination" NCP the objective when creating this/ these pond/s?

0: It was not an objective

3: High degree

31. How effective this/these pond/s are at facilitating pollination?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

32. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

33. Does creating this/these pond/s with the objective of facilitation of pollination negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

34. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitation of pollination on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

35. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of pollination on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 8. Pond/s creation - "regulation of climate" NCP

\* 36. Was the "regulation of climate" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of climate" refers to the climate regulation by ecosystems (including regulation of global warming). It can be produced through: i) positive or negative effects on emissions of greenhouse gases (e.g. biological carbon storage and sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants*

Yes

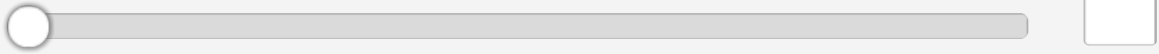
No



## 9. Pond/s creation - "regulation of climate" NCP

37. To what degree was the "regulation of climate" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



38. How effective this/these pond/s are at regulating the climate?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

39. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

40. Does creating this/these pond/s with the objective of regulation of climate negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

41. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of climate on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

42. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of climate on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 10. Pond/s creation - "regulation of water quantity, location and timing" NCP

\* 43. Was the "regulation of water quantity, location and timing" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of water quantity, location and timing" refers to the: i) regulation, by ponds, of the quantity, location and timing of the flow of surface and groundwater; ii) regulation of flow to water-dependent natural habitats; and iii) modification of groundwater levels*

Yes

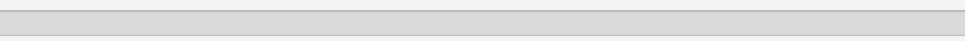
No

## 11. Pond/s creation - "regulation of water quantity, location and timing" NCP

44. To what degree was the "regulation of water quantity, location and timing" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree



45. How effective this/these pond/s are at regulating the water quantity, location and timing?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

46. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

47. Does creating this/these pond/s with the objective of regulation of water quantity, location and timing negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

48. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of water quantity, location and timing on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

49. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of water quantity, location and timing on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 12. Pond/s creation - "regulation of water quality" NCP

\* 50. Was the "regulation of water quality" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of water quality" refers to the influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals*

Yes

No

### 13. Pond/s creation - "regulation of water quality" NCP

51. To what degree was the "regulation of water quality" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

52. How effective this/these pond/s are at regulating the water quality?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

53. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

54. Does creating this/these pond/s with the objective of regulation of water quality negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

55. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of water quality on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

56. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of water quality on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown



#### 14. Pond/s creation - "regulation of hazards and extreme events" NCP

\* 57. Was the "regulation of hazards and extreme events" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of hazards and extreme events" refers to the potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.*

Yes

No

## 15. Pond/s creation - "regulation of hazards and extreme events" NCP

58. To what degree was the "regulation of hazards and extreme events" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

59. How effective this/these pond/s are at regulating the hazards and extreme events?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

60. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

61. Does creating this/these pond/s with the objective of regulation of hazards and extreme events negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

62. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of hazards and extreme events on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

63. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of hazards and extreme events on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 16. Pond/s creation - "food and feed" NCP

\* 64. Was the provision of "food and feed" NCP the objective when creating this/these pond/s?

*The NCP "Food and feed" refers to the: i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g. livestock, work and support animals, pets) or for aquaculture, from the same sources*

Yes

No

## 17. Pond/s creation - "food and feed" NCP

65. To what degree was the "food and feed" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

66. How effective this/these pond/s are at the provision of food and feed?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

67. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

68. Does creating this/these pond/s with the objective of the provision of food and feed negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

69. If you have confirmed a negative influence of creating this/these pond/s with the objective of the provision of food and feed on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

70. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the provision of food and feed on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 18. Pond/s creation - "physical and psychological experiences" NCP

\* 71. Was the "physical and psychological experiences" NCP the objective when creating this/these pond/s?

*The NCP "Physical and psychological experiences" refers to the provision by ponds and/or pondsapes of opportunities for physically and psychologically beneficial activities, healing, relaxation, recreation, leisure, tourism and aesthetic enjoyment based on the close contact with nature (e.g. hiking, recreational hunting and fishing, birdwatching, snorkeling, diving, gardening)*

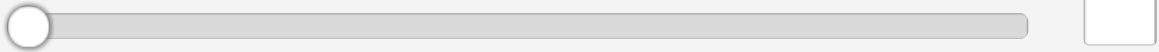
Yes

No

## 19. Pond/s creation - "physical and psychological experiences" NCP

72. To what degree was the "physical and psychological experiences" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



73. How effective this/these pond/s are at facilitating the physical and psychological experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

74. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

75. Does creating this/these pond/s with the objective of facilitating physical and psychological experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



76. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitating physical and psychological experiences on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

77. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of physical and psychological experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 20. Pond/s creation - "learning and inspiration experiences" NCP

\* 78. Was the "learning and inspiration experiences" NCP the objective when creating this/these pond/s?  
*The NCP "Learning and inspiration experiences" refers to the provision by ponds and/or pondsapes of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g. biomimicry)*

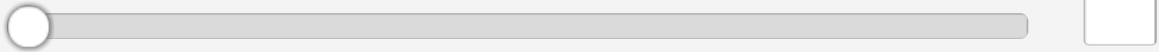
Yes

No

## 21. Pond/s creation - "learning and inspiration experiences" NCP

79. To what degree was the "learning and inspiration experiences" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



80. How effective this/these pond/s are at facilitating the learning and inspiration experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

81. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

82. Does creating this/these pond/s with the objective of facilitating learning and inspiration experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

83. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitating learning and inspiration experiences on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

84. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of learning and inspiration experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 22. Pond/s creation - "supporting identities" NCP

\* 85. Was the "supporting identities" NCP the objective when creating this/these pond/s?

*The NCP "Supporting identities" refers to the ponds and/or pondscares being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds and/or pondscares, and iii) source of satisfaction derived from knowing that a particular pond or pondscape exists*

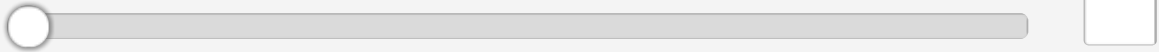
Yes

No

## 23. Pond/s creation - "supporting identities" NCP

86. To what degree was the "supporting identities" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



87. How effective this/these pond/s are at supporting identities?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

88. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

89. Does creating this/these pond/s with the objective of supporting identities negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

90. If you have confirmed a negative influence of creating this/these pond/s with the objective of supporting identities on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

91. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s to support identities on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 24. Pond/s creation - "Maintenance of options" NCP

\* 92. Was the "Maintenance of options" NCP the objective when creating this/these pond/s?

*The NCP "Maintenance of options" refers to the capacity of ponds and/or pondsapes to keep options open in order to support a good quality of life. For example, benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations and genotypes, including their contributions to the resilience and resistance of pond/pondscape properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondscapes.*

Yes

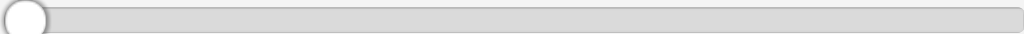
No



## 25. Pond/s creation - "Maintenance of options" NCP

93. To what degree was the "maintenance of options" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



94. How effective this/these pond/s are for the maintenance of options?


- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

95. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

96. Does creating this/these pond/s with the objective of maintenance of options negatively influence the delivery of any other NCPs?

0: No negative influence on other NCP 3: Many negative influences on other NCPs



97. If you have confirmed a negative influence of creating this/these pond/s with the objective of maintenance of options on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

98. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the maintenance of options on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 26. Pond/s creation - final

\* 99. Cite the sources of the information where the information detailed here comes from (report, journal article, website links, expert notes) or detail whether the information comes from expert evidence (in the case there are not published references)

\* 100. Would you (and your pondscape) be willing to be added as contributor in the European Commission Ponderful deliverable (D4.1. Database on Pondscales) and in the acknowledgements of the scientific publications?

Yes

No

\* 101. Would you like to receive the report that will result from this survey?

Yes

No

If yes, to what email?

102. We aim to get local expertise and knowledge on all these issues, if you know the contact of people who is directly working with created, restored or managed ponds and could also answer this questionnaire, could you please add their names and/or contact?

## 27. Pond/pondscape creation 2

\* 103. If you created more than one pond or set of ponds with another purpose as the one described in the questions before, would you like to provide further information about them?

*e.g. creating one or several ponds in a site where there was formerly no waterbody*

Yes

No

## 28. Pond/pondscape creation 2

The following questions concern the second most important pond or set of ponds that was/were created with the same purpose (same NbS) in a site where there was formerly no waterbody (you responded "yes" in the previous page).

At the end of this section, you will be asked whether you would like to provide information about other ponds or set of ponds created in the same pondscape with another purpose (another NbS).

\* 104. What was done exactly, e.g. number of ponds created, purpose (e.g. leisure, biodiversity)? (max 5000 characters)

105. What was the dominant land cover before the pond/s was/were created?

Select the land cover that appeared most frequently in the landscape where the pond/s was/were created.  
*CORINE land cover (CLC) nomenclature, European Environment Agency*

- Cropland
- Farmland
- Forest
- Grassland
- Pastureland
- Shrubland
- Shrubland mixed with forest
- Shrubland mixed with cropland
- Shrubland mixed with grassland
- Wetlands
- Urban areas
- Industrial, commercial and transport units
- Other (please specify)

106. In what year the negotiation for the creation of the pond/s (e.g. political negotiations/site permissions, etc.) and/or the practical creation of the pond started? Enter 4-digit birth year; for example, 2005

Comment (if needed)

107. Which was the timeframe for the negotiation for the creation of the pond/s (e.g. political negotiations/site permissions, etc.), from the idea to the establishment? Please enter the number of months; for example, 3.

Comment (if needed)

108. How long did it take to create the pond/s in practice (e.g. digging...)? Please enter the number of months; for example, 3.

Comment (if needed)

109. What kind of stakeholders were involved in the creation of the pond/s and in which way?

*Skip this stage if you don't have this information.*

Formal involvement (e.g. management, formal decision making, etc.)

Informal role (e.g. volunteer, user, etc.)

Civil society: citizens and representatives of active associations

Policy maker: a person responsible for or involved in formulating policies, especially in politics.

Public sector (not policy maker): governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programs, goods, or services

Private sector: for-profit businesses run by individuals or companies

Scientific

110. How much money, in Euros, did the creation of the pond/s cost?

*e.g. design, land acquisition/rent, insurance and legal fees, equipment rent/ purchase, construction cost, etc.*

*Skip this stage if you don't have this information.*

111. Give a description of the costs provided in the previous question (max 1000 characters)

*Skip this stage if you don't have this information.*

112. Is/are the pond/s generating any revenue?

*Skip this stage if you don't have this information.*

- Yes
- No
- If yes, how much per year? (in Euros/year)

113. The following questions focus on different Nature's contributions to people (NCP\*) that the pond/s created might have contributed to.

*\*NCP are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people*

Was the "creation of habitat for biodiversity" NCP the objective when creating this/these pond/s?

*The NCP "creation of habitat for biodiversity" refers to the formation and continued production of habitats for biodiversity. In the case of pondscapes, examples are e.g. growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds and butterflies; nurseries for juvenile stages of fish, etc.*

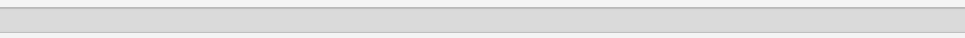
- Yes
- No

## 29. Pond/s creation 2 - "creating habitat for biodiversity" NCP

114. To what degree was the "creating habitat for biodiversity" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree



115. How effective this/these pond/s are at creating habitat for biodiversity?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

116. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

117. Does creating this/these pond/s with the objective of creating habitat for biodiversity negatively influence the delivery of any other NCPs?

- Many negative influences on other NCPs
- Some negative influences on other NCPs
- No negative influences on other NCPs
- Unknown



118. If you have confirmed a negative influence of creating this/these pond/s with the objective of creating habitat for biodiversity on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

119. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the creation of habitat for biodiversity on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 30. Pond/s creation 2- "pollination" NCP

\* 120. Was the "pollination" NCP the objective when creating this/these pond/s?

*The NCP "Pollination" refers to the facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae or spores*

Yes

No

### 31. Pond/s creation 2 - "pollination" NCP

121. To what degree was the "pollination" NCP the objective when creating this/ these pond/s?

0: It was not an objective

3: High degree

122. How effective this/these pond/s are at facilitating pollination?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

123. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

124. Does creating this/these pond/s with the objective of facilitation of pollination negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

125. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitation of pollination on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

126. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of pollination on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 32. Pond/s creation 2- "regulation of climate" NCP

\* 127. Was the "regulation of climate" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of climate" refers to the climate regulation by ecosystems (including regulation of global warming). It can be produced through: i) positive or negative effects on emissions of greenhouse gases (e.g. biological carbon storage and sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants*

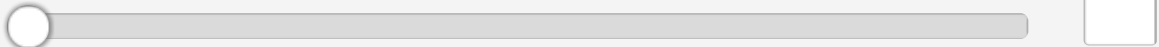
Yes

No

### 33. Pond/s creation 2 - "regulation of climate" NCP

128. To what degree was the "regulation of climate" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



129. How effective this/these pond/s are at regulating the climate?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

130. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

131. Does creating this/these pond/s with the objective of regulation of climate negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

132. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of climate on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

133. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of climate on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 34. Pond/s creation 2- "regulation of water quantity, location and timing" NCP

\* 134. Was the "regulation of water quantity, location and timing" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of water quantity, location and timing" refers to the: i) regulation, by ponds, of the quantity, location and timing of the flow of surface and groundwater; ii) regulation of flow to water-dependent natural habitats; and iii) modification of groundwater levels*

Yes

No



### 35. Pond/s creation 2 - "regulation of water quantity, location and timing" NCP

135. To what degree was the "regulation of water quantity, location and timing" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

136. How effective this/these pond/s are at regulating the water quantity, location and timing?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

137. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

138. Does creating this/these pond/s with the objective of regulation of water quantity, location and timing negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

139. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of water quantity, location and timing on other NCPs, could you please identify those? *For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

140. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of water quantity, location and timing on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 36. Pond/s creation 2- "regulation of water quality" NCP

\* 141. Was the "regulation of water quality" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of water quality" refers to the influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals*

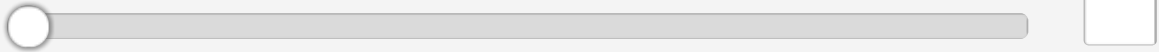
Yes

No

### 37. Pond/s creation 2 - "regulation of water quality" NCP

142. To what degree was the "regulation of water quality" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



143. How effective this/these pond/s are at regulating the water quality?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

144. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

145. Does creating this/these pond/s with the objective of regulation of water quality negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

146. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of water quality on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

147. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of water quality on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 38. Pond/s creation 2- "regulation of hazards and extreme events" NCP

\* 148. Was the regulation of "regulation of hazards and extreme events" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of hazards and extreme events" refers to the potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.*

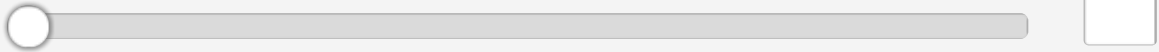
Yes

No

### 39. Pond/s creation 2 - "regulation of hazards and extreme events" NCP

149. To what degree was the "regulation of hazards and extreme events" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



150. How effective this/these pond/s are at regulating the hazards and extreme events?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

151. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

152. Does creating this/these pond/s with the objective of regulation of hazards and extreme events negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

153. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of hazards and extreme events on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

154. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of hazards and extreme events on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown



#### 40. Pond/s creation 2- "food and feed" NCP

\* 155. Was the "food and feed" NCP the objective when creating this/these pond/s?

*The NCP "Food and feed" refers to the: i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g. livestock, work and support animals, pets) or for aquaculture, from the same sources*

Yes

No

## 41. Pond/s creation 2 - "food and feed" NCP

156. To what degree was the "food and feed" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

157. How effective this/these pond/s are at the provision of food and feed?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

158. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

159. Does creating this/these pond/s with the objective of the provision of food and feed negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

160. If you have confirmed a negative influence of creating this/these pond/s with the objective of the provision of food and feed on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

161. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the provision of food and feed on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 42. Pond/s creation 2- "physical and psychological experiences" NCP

\* 162. Was the "physical and psychological experiences" NCP the objective when creating this/these pond/s?

*The NCP "Physical and psychological experiences" refers to the provision by ponds and/or pondsapes of opportunities for physically and psychologically beneficial activities, healing, relaxation, recreation, leisure, tourism and aesthetic enjoyment based on the close contact with nature (e.g. hiking, recreational hunting and fishing, birdwatching, snorkeling, diving, gardening)*

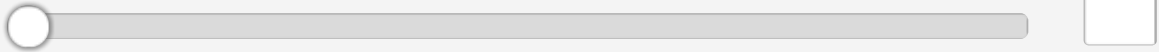
Yes

No

### 43. Pond/s creation 2 - "physical and psychological experiences" NCP

163. To what degree was the "physical and psychological experiences" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



164. How effective this/these pond/s are at facilitating the physical and psychological experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

165. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

166. Does creating this/these pond/s with the objective of facilitating physical and psychological experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

167. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitating physical and psychological experiences on other NCPs, could you please identify those? For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

168. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of physical and psychological experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

#### 44. Pond/s creation 2- "learning and inspiration experiences" NCP

\* 169. Was the "learning and inspiration experiences" NCP the objective when creating this/these pond/s?  
*The NCP "Learning and inspiration experiences" refers to the provision by ponds and/or pondscares of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g. biomimicry)*

Yes

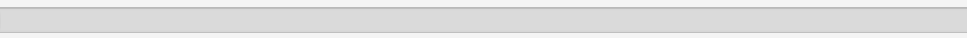
No

## 45. Pond/s creation 2 - "learning and inspiration experiences" NCP

170. To what degree was the "learning and inspiration experiences" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree



171. How effective this/these pond/s are at facilitating the learning and inspiration experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

172. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

173. Does creating this/these pond/s with the objective of facilitating learning and inspiration experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



174. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitating learning and inspiration experiences on other NCPs, could you please identify those? For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

175. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of learning and inspiration experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

#### 46. Pond/s creation 2- "supporting identities" NCP

\* 176. Was the "supporting identities" NCP the objective when creating this/these pond/s?

*The NCP "Supporting identities" refers to the ponds and/or pondsapes being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds and/or pondsapes, and iii) source of satisfaction derived from knowing that a particular pond or pondsape exists*

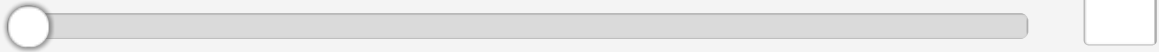
Yes

No

## 47. Pond/s creation 2 - "supporting identities" NCP

177. To what degree was the "supporting identities" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



178. How effective this/these pond/s are at supporting identities?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

179. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

180. Does creating this/these pond/s with the objective of supporting identities negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

181. If you have confirmed a negative influence of creating this/these pond/s with the objective of supporting identities on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

182. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s to support identities on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

#### 48. Pond/s creation 2- "Maintenance of options" NCP

\* 183. Was the "maintenance of options" NCP the objective when creating this/these pond/s?

*The NCP "Maintenance of options" refers to the capacity of ponds and/or pondsapes to keep options open in order to support a good quality of life. For example, benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations and genotypes, including their contributions to the resilience and resistance of pond/pondscape properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondscapes.*

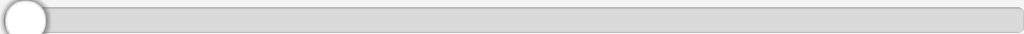
Yes

No

#### 49. Pond/s creation 2 - "Maintenance of options" NCP

184. To what degree was the "maintenance of options" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



185. How effective this/these pond/s are for the maintenance of options?


- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

186. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

187. Does creating this/these pond/s with the objective of maintenance of options negatively influence the delivery of any other NCPs?

0: No negative influence on other NCP 3: Many negative influences on other NCPs



188. If you have confirmed a negative influence of creating this/these pond/s with the objective of maintenance of options on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

189. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the maintenance of options on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 50. Pond/s creation 2- final

\* 190. Cite the sources of the information where the information detailed here comes from (report, journal article, website links, expert notes) or detail whether the information comes from expert evidence (in the case there are not published references)

\* 191. Would you (and your pondscape) be willing to be added as contributor in the European Commission Ponderful deliverable (D4.1. Database on Pondscales) and in the acknowledgements of the scientific publications?

Yes

No

\* 192. Would you like to receive the report that will result from this survey?

Yes

No

If yes, to what email?

193. We aim to get local expertise and knowledge on all these issues, if you know the contact of people who is directly working with created, restored or managed ponds and could also answer this questionnaire, could you please add their names and/or contact?



### 51. Pond/pondscape creation 3

\* 194. If you created a third pond or set of ponds with another purpose as the one described in the questions before, would you like to provide further information about them?

*e.g. creating one or several ponds in a site where there was formerly no waterbody*

Yes

No

## 52. Pond/pondscape creation 3

The following questions concern the third most important pond or set of ponds that was/were created with the same purpose (same NbS) in a site where there was formerly no waterbody (you responded "yes" in the previous page).

\* 195. What was done exactly, e.g. number of ponds created, purpose (e.g. leisure, biodiversity)? (max 5000 characters)

196. What was the dominant land cover before the pond/s was/were created?

Select the land cover that appeared most frequently in the landscape where the pond/s was/were created.

CORINE land cover (CLC) nomenclature, European Environment Agency

- Cropland
- Farmland
- Forest
- Grassland
- Pastureland
- Shrubland
- Shrubland mixed with forest
- Shrubland mixed with cropland
- Shrubland mixed with grassland
- Wetland
- Urban areas
- Industrial, commercial and transport units
- Other (please specify)

197. In what year the negotiation for the creation of the pond/s (e.g. political negotiations/site permissions, etc.) and/or the practical creation of the pond started? Enter 4-digit birth year; for example, 2005

Comment (if needed)

198. Which was the timeframe for the negotiation for the creation of the pond/s (e.g. political negotiations/site permissions, etc.), from the idea to the establishment? Please enter the number of months; for example, 3.

Comment (if needed)

199. How long did it take to create the pond/s in practice (e.g. digging...)? Please enter the number of months; for example, 3.

Comment (if needed)

200. What kind of stakeholders were involved in the creation of the pond/s and in which way?

*Skip this stage if you don't have this information.*

|   | Formal involvement (e.g. management, formal decision making, etc.) | Informal role (e.g. volunteer, user, etc.) |
|---|--|--|
| Civil society: citizens and representatives of active associations  | <input type="radio"/>  | <input type="radio"/>                      |
| Policy maker: a person responsible for or involved in formulating policies, especially in politics.   | <input type="radio"/>  | <input type="radio"/>                      |
| Public sector (not policy maker): governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programs, goods, or services | <input type="radio"/>  | <input type="radio"/>                      |
| Private sector: for-profit businesses run by individuals or companies   | <input type="radio"/>  | <input type="radio"/>                      |
| Scientific  | <input type="radio"/>  | <input type="radio"/>                      |

201. How much money, in Euros, did the creation of the pond/s cost?

*e.g. design, land acquisition/rent, insurance and legal fees, equipment rent/ purchase, construction cost, etc.*

*Skip this stage if you don't have this information.*

202. Give a description of the costs provided in the previous question (max 1000 characters)

*Skip this stage if you don't have this information.*

203. Is/are the pond/s generating any revenue?

*Skip this stage if you don't have this information.*

Yes

No

If yes, how much per year? (in Euros/year)

204. The following questions focus on different Nature's contributions to people (NCP\*) that the pond/s created might have contributed to.

*\*NCP are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people*

Was the "creation and maintenance of habitat" NCP the objective when creating this/these pond/s?  
*The NCP "Creation and maintenance of habitat" refers to the formation and continued production of habitats for biodiversity. In the case of pondscapes, examples are e.g. growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds and butterflies; nurseries for juvenile stages of fish, etc.*

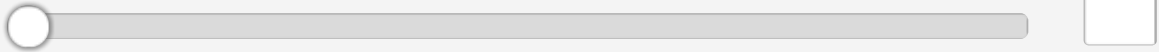
Yes

No

### 53. Pond/s creation 3 - "creating habitat for biodiversity" NCP

205. To what degree was the "creating habitat for biodiversity" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



206. How effective this/these pond/s are at creating habitat for biodiversity?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

207. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

208. Does creating this/these pond/s with the objective of creating habitat for biodiversity negatively influence the delivery of any other NCPs?

- Many negative influences on other NCPs
- Some negative influences on other NCPs
- No negative influences on other NCPs
- Unknown

209. If you have confirmed a negative influence of creating this/these pond/s with the objective of creating habitat for biodiversity on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

210. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the creation of habitat for biodiversity on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

#### 54. Pond/s creation 3- "pollination" NCP

\* 211. Was the "pollination" NCP the objective when creating this/these pond/s?

*The NCP "Pollination" refers to the facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae or spores*

Yes

No

## 55. Pond/s creation 3 - "pollination" NCP

212. To what degree was the "pollination" NCP the objective when creating this/ these pond/s?

0: It was not an objective

3: High degree

213. How effective this/these pond/s are at facilitating pollination?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

214. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

215. Does creating this/these pond/s with the objective of facilitation of pollination negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



216. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitation of pollination on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

217. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of pollination on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 56. Pond/s creation 3- "regulation of climate" NCP

\* 218. Was the "regulation of climate" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of climate" refers to the climate regulation by ecosystems (including regulation of global warming). It can be produced through: i) positive or negative effects on emissions of greenhouse gases (e.g. biological carbon storage and sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants*

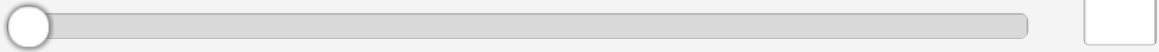
Yes

No

## 57. Pond/s creation 3 - "regulation of climate" NCP

219. To what degree was the "regulation of climate" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



220. How effective this/these pond/s are at regulating the climate?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

221. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

222. Does creating this/these pond/s with the objective of regulation of climate negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

223. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of climate on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

224. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of climate on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 58. Pond/s creation 3- "regulation of water quantity, location and timing" NCP

\* 225. Was the "regulation of water quantity, location and timing" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of water quantity, location and timing" refers to the: i) regulation, by ponds, of the quantity, location and timing of the flow of surface and groundwater; ii) regulation of flow to water-dependent natural habitats; and iii) modification of groundwater levels*

Yes

No

### 59. Pond/s creation 3 - "regulation of water quantity, location and timing" NCP

226. To what degree was the "regulation of water quantity, location and timing" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

227. How effective this/these pond/s are at regulating the water quantity, location and timing?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

228. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

229. Does creating this/these pond/s with the objective of regulation of water quantity, location and timing negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

230. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of water quantity, location and timing on other NCPs, could you please identify those? *For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

231. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of water quantity, location and timing on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 60. Pond/s creation 3- "regulation of water quality" NCP

\* 232. Was the "regulation of water quality" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of water quality" refers to the influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals*

Yes

No



## 61. Pond/s creation 3 - "regulation of water quality" NCP

233. To what degree was the "regulation of water quality" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

234. How effective this/these pond/s are at regulating the water quality?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

235. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

236. Does creating this/these pond/s with the objective of regulation of water quality negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

237. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of water quality on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

238. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of water quality on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 62. Pond/s creation 3- "regulation of hazards and extreme events" NCP

\* 239. Was the "regulation of hazards and extreme events" NCP the objective when creating this/these pond/s?

*The NCP "Regulation of hazards and extreme events" refers to the potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.*

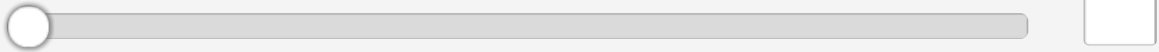
Yes

No

### 63. Pond/s creation 3 - "regulation of hazards and extreme events" NCP

240. To what degree was the "regulation of hazards and extreme events" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



241. How effective this/these pond/s are at regulating the hazards and extreme events?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

242. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

243. Does creating this/these pond/s with the objective of regulation of hazards and extreme events negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

244. If you have confirmed a negative influence of creating this/these pond/s with the objective of regulation of hazards and extreme events on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

245. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the regulation of hazards and extreme events on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

#### 64. Pond/s creation 3- "food and feed" NCP

\* 246. Was the "food and feed" NCP the objective when creating this/these pond/s?

*The NCP "Food and feed" refers to the: i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g. livestock, work and support animals, pets) or for aquaculture, from the same sources*

Yes

No

## 65. Pond/s creation 3 - "food and feed" NCP

247. To what degree was the "food and feed" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

248. How effective this/these pond/s are at the provision of food and feed?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

249. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

250. Does creating this/these pond/s with the objective of the provision of food and feed negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

251. If you have confirmed a negative influence of creating this/these pond/s with the objective of the provision of food and feed on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

252. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the provision of food and feed on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown



## 66. Pond/s creation 3- "physical and psychological experiences" NCP

\* 253. Was the "physical and psychological experiences" NCP the objective when creating this/these pond/s?

*The NCP "Physical and psychological experiences" refers to the provision by ponds and/or pondsapes of opportunities for physically and psychologically beneficial activities, healing, relaxation, recreation, leisure, tourism and aesthetic enjoyment based on the close contact with nature (e.g. hiking, recreational hunting and fishing, birdwatching, snorkeling, diving, gardening)*

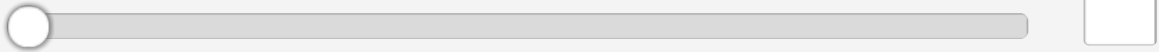
Yes

No

## 67. Pond/s creation 3 - "physical and psychological experiences" NCP

254. To what degree was the "physical and psychological experiences" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



255. How effective this/these pond/s are at facilitating the physical and psychological experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

256. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

257. Does creating this/these pond/s with the objective of facilitating physical and psychological experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

258. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitating physical and psychological experiences on other NCPs, could you please identify those? For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

259. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of physical and psychological experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 68. Pond/s creation 3- "learning and inspiration experiences" NCP

\* 260. Was the "learning and inspiration experiences" NCP the objective when creating this/these pond/s?  
*The NCP "Learning and inspiration experiences" refers to the provision by ponds and/or pondscares of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g. biomimicry)*

Yes

No

## 69. Pond/s creation 3 - "learning and inspiration experiences" NCP

261. To what degree was the "learning and inspiration experiences" NCP the objective when creating this/these pond/s?

0: It was not an objective

3: High degree

262. How effective this/these pond/s are at facilitating the learning and inspiration experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

263. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

264. Does creating this/these pond/s with the objective of facilitating learning and inspiration experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

265. If you have confirmed a negative influence of creating this/these pond/s with the objective of facilitating learning and inspiration experiences on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

266. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the facilitation of learning and inspiration experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 70. Pond/s creation 3- "supporting identities" NCP

\* 267. Was the "supporting identities" NCP the objective when creating this/these pond/s?

*The NCP "Supporting identities" refers to the ponds and/or pondscares being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds and/or pondscares, and iii) source of satisfaction derived from knowing that a particular pond or pondscape exists*

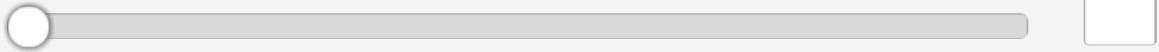
Yes

No

## 71. Pond/s creation 3 - "supporting identities" NCP

268. To what degree was the "supporting identities" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



269. How effective this/these pond/s are at supporting identities?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

270. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

271. Does creating this/these pond/s with the objective of supporting identities negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



272. If you have confirmed a negative influence of creating this/these pond/s with the objective of supporting identities on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

273. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s to support identities on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 72. Pond/s creation 3- "Maintenance of options" NCP

\* 274. Was the "maintenance of options" NCP the objective when creating this/these pond/s?

*The NCP "Maintenance of options" refers to the capacity of ponds and/or pondsapes to keep options open in order to support a good quality of life. For example, benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations and genotypes, including their contributions to the resilience and resistance of pond/pondscape properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondscapes.*

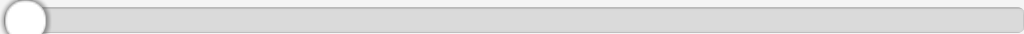
Yes

No

### 73. Pond/s creation 3 - "Maintenance of options" NCP

275. To what degree was the "maintenance of options" NCP the objective when creating this/these pond/s?

0: It was not an objective 3: High degree



276. How effective this/these pond/s are for the maintenance of options?


- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

277. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

278. Does creating this/these pond/s with the objective of maintenance of options negatively influence the delivery of any other NCPs?

0: No negative influence on other NCP 3: Many negative influences on other NCPs



279. If you have confirmed a negative influence of creating this/these pond/s with the objective of maintenance of options on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

280. What is the degree of confidence you have regarding the negative influence of creating this/these pond/s for the maintenance of options on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 74. Pond/s creation 3- final

\* 281. Cite the sources of the information where the information detailed here comes from (report, journal article, website links, expert notes) or detail whether the information comes from expert evidence (in the case there are not published references)

\* 282. Would you (and your pondscape) be willing to be added as contributor in the European Comission Ponderful deliverable (D4.1. Database on Pondscales) and in the acknowledgements of the scientific publications?

Yes

No

\* 283. Would you like to receive the report that will result from this survey?

Yes

No

If yes, to what email?

284. We aim to get local expertise and knowledge on all these issues, if you know the contact of people who is directly working with created, restored or managed ponds and could also answer this questionnaire, could you please add their names and/or contact?

## 75. Pond/pondscape restoration

**e.g. digging a pond in a place where formerly a pond was existing; regenerating a landfilled pond; undertaking important transformations on an existing pond that was functionally lost (e.g. depth, morphometry, slopes, shoreline design, flora or fauna)**

\* 285. Is your chosen example of NbS the restoration of a pond or several ponds?

*By responding "No" to a particular type of NbS, you will skip all the questions regarding this NbS.*

- Yes
- Yes, but the pond/s restored are the exact same one/s as the ones that were created, with the same objectives and the same NCP affected
- No

## 76. Pond/pondscape restoration

The following questions concern the pond or ponds that were restored (you responded "yes" in the previous page)

\* 286. What kind of restoration did you perform?

- Creating or restoring a pond in a site where formerly a pond was existing, e.g. excavating a pond that had been filled in
- Significant alterations to an existing pond, e.g. depth, morphometry, slopes, shoreline design, shflora or fauna
- Other (please specify)

\* 287. What was done exactly, e.g. number of ponds restored, purpose (e.g. leisure, biodiversity)? (max 5000 characters)

288. In what year the negotiation for the restoration of the pond/s (e.g. political negotiations/site permissions, etc.) and/or the practical restoration of the pond started? Enter 4-digit birth year; for example, 2005

Comment (if needed)

289. Which was the timeframe for the negotiation for the restoration of the pond/s (e.g. political negotiations/site permissions, etc.), from the idea to the establishment? Please enter the number of months; for example, 3.

Comment (if needed)

290. How long did it take to restore the pond/s in practice (e.g. digging...)? Please enter the number of months; for example, 3.

Comment (if needed)

291. What kind of stakeholders were involved in the restoration of the pond/s and in which way?

*Skip this stage if you don't have this information.*

|   | Formal involvement (e.g. management, formal decision making, etc.) | Informal role (e.g. volunteer, user, etc.) |
|---|--|--|
| Civil society: citizens and representatives of active associations  | <input type="radio"/>  | <input type="radio"/>                      |
| Policy maker: a person responsible for or involved in formulating policies, especially in politics.   | <input type="radio"/>  | <input type="radio"/>                      |
| Public sector (not policy maker): governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programs, goods, or services | <input type="radio"/>  | <input type="radio"/>                      |
| Private sector: for-profit businesses run by individuals or companies   | <input type="radio"/>  | <input type="radio"/>                      |
| Scientific  | <input type="radio"/>  | <input type="radio"/>                      |

292. How much money, in Euros, did the restoration of the pond/s cost?

*e.g. design, land acquisition/rent, insurance and legal fees, equipment rent/ purchase, construction cost, etc.*

*Skip this stage if you don't have this information.*

293. Give a description of the costs provided in the previous question (max 1000 characters)

*Skip this stage if you don't have this information.*

294. Is/are the pond/s generating any revenue?

*Skip this stage if you don't have this information.*

- Yes
- No
- If yes, how much per year? (in Euros/year)



295. The following questions focus on different Nature's contributions to people (NCP\*) that the pond/s restored might have contributed to.

*\*NCP are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people*

Was the "creation of habitat for biodiversity" NCP the objective when restoring this/these pond/s?

*The NCP "creation of habitat for biodiversity" refers to the formation and continued production of habitats for biodiversity. In the case of pondscapes, examples are e.g. growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds and butterflies; nurseries for juvenile stages of fish, etc.*

Yes

No

## 77. Pond/s restoration - "creation of habitat for biodiversity" NCP

296. To what degree was the "creation of habitat for biodiversity" NCP the objective when restoring this/these pond/s?

0: It was not an objective

3: High degree

297. How effective this/these pond/s are at creating habitat for biodiversity?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

298. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

299. Does restoring this/these pond/s with the objective of creating habitat for biodiversity negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

300. If you have confirmed a negative influence of restoring this/these pond/s with the objective of creating habitat for biodiversity on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

301. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the creation of habitat for biodiversity on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 78. Pond/s restoration - "pollination" NCP

\* 302. Was the "pollination" NCP the objective when restoring this/these pond/s?

*The NCP "Pollination" refers to the facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae or spores*

Yes

No

## 79. Pond/s restoration - "pollination" NCP

303. To what degree was the "pollination" NCP the objective when restoring this/ these pond/s?

0: It was not an objective

3: High degree

304. How effective this/these pond/s are at facilitating pollination?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

305. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

306. Does restoring this/these pond/s with the objective of facilitation of pollination negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

307. If you have confirmed a negative influence of restoring this/these pond/s with the objective of facilitation of pollination on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

308. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the facilitation of pollination on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 80. Pond/s restoration - "regulation of climate" NCP

\* 309. Was the "regulation of climate" NCP the objective when restoring this/these pond/s?

*The NCP "Regulation of climate" refers to the climate regulation by ecosystems (including regulation of global warming). It can be produced through: i) positive or negative effects on emissions of greenhouse gases (e.g. biological carbon storage and sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants*

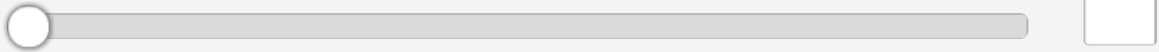
Yes

No

## 81. Pond/s restoration - "regulation of climate" NCP

310. To what degree was the "regulation of climate" NCP the objective when restoring this/these pond/s?

0: It was not an objective 3: High degree



311. How effective this/these pond/s are at regulating the climate?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

312. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

313. Does restoring this/these pond/s with the objective of regulation of climate negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



314. If you have confirmed a negative influence of restoring this/these pond/s with the objective of regulation of climate on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

315. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the regulation of climate on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 82. Pond/s restoration - "regulation of water quantity, location and timing" NCP

\* 316. Was the "regulation of water quantity, location and timing" NCP the objective when restoring this/these pond/s?

*The NCP "Regulation of water quantity, location and timing" refers to the: i) regulation, by ponds, of the quantity, location and timing of the flow of surface and groundwater; ii) regulation of flow to water-dependent natural habitats; and iii) modification of groundwater levels*

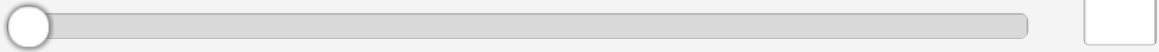
Yes

No

### 83. Pond/s restoration - "regulation of water quantity, location and timing" NCP

317. To what degree was the regulation of water quantity, location and timing the objective when restoring this/these pond/s?

0: It was not an objective 3: High degree



318. How effective this/these pond/s are at regulating the water quantity, location and timing?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

319. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

320. Does restoring this/these pond/s with the objective of regulation of water quantity, location and timing negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

321. If you have confirmed a negative influence of restoring this/these pond/s with the objective of regulation of water quantity, location and timing on other NCPs, could you please identify those? *For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

322. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the regulation of water quantity, location and timing on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

#### 84. Pond/s restoration - "regulation of water quality" NCP

\* 323. Was the "regulation of water quality" NCP the objective when restoring this/these pond/s?

*The NCP "Regulation of water quality" refers to the influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals*

Yes

No

## 85. Pond/s restoration - "regulation of water quality" NCP

324. To what degree was the "regulation of water quality" NCP the objective when restoring this/these pond/s?

0: It was not an objective

3: High degree

325. How effective this/these pond/s are at regulating the water quality?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

326. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

327. Does restoring this/these pond/s with the objective of regulation of water quality negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

328. If you have confirmed a negative influence of restoring this/these pond/s with the objective of regulation of water quality on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

329. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the regulation of water quality on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 86. Pond/s restoration - "regulation of hazards and extreme events" NCP

\* 330. Was the "regulation of hazards and extreme events" NCP the objective when restoring this/these pond/s?

*The NCP "Regulation of hazards and extreme events" refers to the potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.*

Yes

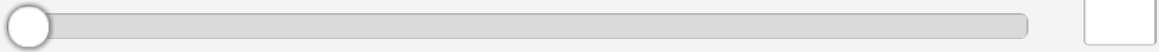
No



## 87. Pond/s restoration - "regulation of hazards and extreme events" NCP

331. To what degree was the "regulation of hazards and extreme events" NCP the objective when restoring this/these pond/s?

0: It was not an objective 3: High degree



332. How effective this/these pond/s are at regulating the hazards and extreme events?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

333. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

334. Does restoring this/these pond/s with the objective of regulation of hazards and extreme events negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

335. If you have confirmed a negative influence of restoring this/these pond/s with the objective of regulation of hazards and extreme events on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

336. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the regulation of hazards and extreme events on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 88. Pond/s restoration - "food and feed" NCP

\* 337. Was the "food and feed" NCP the objective when restoring this/these pond/s?

*The NCP "Food and feed" refers to the: i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g. livestock, work and support animals, pets) or for aquaculture, from the same sources*

Yes

No

## 89. Pond/s restoration - "food and feed" NCP

338. To what degree was the "food and feed" NCP the objective when restoring this/these pond/s?

0: It was not an objective

3: High degree

339. How effective this/these pond/s are at the provision of food and feed?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

340. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

341. Does restoring this/these pond/s with the objective of the provision of food and feed negatively influence the delivery of any other NCPs?

0: No negative influence on other NCP

3: Many negative influences on other NCPs

342. If you have confirmed a negative influence of restoring this/these pond/s with the objective of the provision of food and feed on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

343. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the provision of food and feed on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 90. Pond/s restoration - "physical and psychological experiences" NCP

\* 344. Was the "physical and psychological experiences" NCP the objective when restoring this/these pond/s?

*The NCP "Physical and psychological experiences" refers to the provision by ponds and/or pondsapes of opportunities for physically and psychologically beneficial activities, healing, relaxation, recreation, leisure, tourism and aesthetic enjoyment based on the close contact with nature (e.g. hiking, recreational hunting and fishing, birdwatching, snorkeling, diving, gardening)*

Yes

No

## 91. Pond/s restoration - "physical and psychological experiences" NCP

345. To what degree was the "physical and psychological experiences" NCP the objective when restoring this/these pond/s?

0: It was not an objective

3: High degree

346. How effective this/these pond/s are at facilitating the physical and psychological experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

347. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

348. Does restoring this/these pond/s with the objective of facilitating physical and psychological experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

349. If you have confirmed a negative influence of restoring this/these pond/s with the objective of facilitating physical and psychological experiences on other NCPs, could you please identify those? For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

350. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the facilitation of physical and psychological experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown



## 92. Pond/s restoration - "learning and inspiration experiences" NCP

\* 351. Was the "learning and inspiration experiences" NCP the objective when restoring this/these pond/s?  
*The NCP "Learning and inspiration experiences" refers to the provision by ponds and/or pondsapes of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g. biomimicry)*

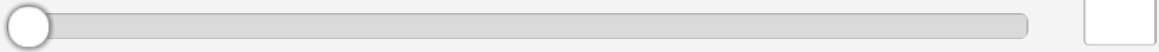
Yes

No

### 93. Pond/s restoration - "learning and inspiration experiences" NCP

352. To what degree was the "learning and inspiration experiences" NCP the objective when restoring this/these pond/s?

0: It was not an objective 3: High degree



353. How effective this/these pond/s are at facilitating the learning and inspiration experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

354. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

355. Does restoring this/these pond/s with the objective of facilitating learning and inspiration experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

356. If you have confirmed a negative influence of restoring this/these pond/s with the objective of facilitating learning and inspiration experiences on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

357. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the facilitation of learning and inspiration experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 94. Pond/s restoration - "supporting identities" NCP

\* 358. Was the "supporting identities" NCP the objective when restoring this/these pond/s?

*The NCP "Supporting identities" refers to the ponds and/or pondscapes being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds and/or pondscapes, and iii) source of satisfaction derived from knowing that a particular pond or pondscape exists*

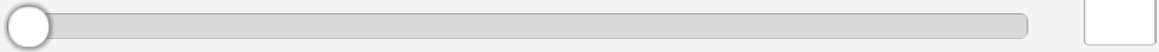
Yes

No

## 95. Pond/s restoration - "supporting identities" NCP

359. To what degree was the "supporting identities" NCP the objective when restoring this/these pond/s?

0: It was not an objective 3: High degree



360. How effective this/these pond/s are at supporting identities?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

361. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

362. Does restoring this/these pond/s with the objective of supporting identities negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

363. If you have confirmed a negative influence of restoring this/these pond/s with the objective of supporting identities on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

364. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s to support identities on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 96. Pond/s restoration - "Maintenance of options" NCP

\* 365. Was the "maintenance of options" NCP the objective when restoring this/these pond/s?  
*The NCP "Maintenance of options" refers to the capacity of ponds and/or pondsapes to keep options open in order to support a good quality of life. For example, benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations and genotypes, including their contributions to the resilience and resistance of pond/pondscape properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondsapes.*

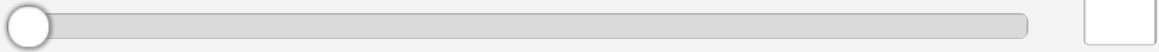
Yes

No

## 97. Pond/s restoration - "Maintenance of options" NCP

366. To what degree was the "maintenance of options" NCP the objective when restoring this/these pond/s?

0: It was not an objective 3: High degree



367. How effective this/these pond/s are for the maintenance of options?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

368. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

369. Does restoring this/these pond/s with the objective of maintenance of options negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



370. If you have confirmed a negative influence of restoring this/these pond/s with the objective of maintenance of options on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

371. What is the degree of confidence you have regarding the negative influence of restoring this/these pond/s for the maintenance of options on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 98. Pond/s restoration - final

\* 372. Cite the sources of the information where the information detailed here comes from (report, journal article, website links, expert notes) or detail whether the information comes from expert evidence (in the case there are not published references)

\* 373. Would you (and your pondscape) be willing to be added as contributor in the European Commission Ponderful deliverable (D4.1. Database on Pondscales) and in the acknowledgements of the scientific publications?

Yes

No

\* 374. Would you like to receive the report that will result from this survey?

Yes

No

If yes, to what email?

375. We aim to get local expertise and knowledge on all these issues, if you know the contact of people who is directly working with created, restored or managed ponds and could also answer this questionnaire, could you please add their names and/or contact?

## 99. Pond/pondscape management

**Pond/pondscape management refer to i) those pond infrastructure measures (acting on areas immediately surrounding a pond/s), ii) pond management measures (actions within pond/s) and iii) land-use actions that are needed to ensure the appropriate functioning of a pondscape; e.g. removing some vegetation or tree shade, removing or introducing species, water management, etc. They can be local (pond scale, e.g. small-scale) or regional (pondscape, e.g. large-scale), or both.**

\* 376. Is your chosen example of NbS a pond/pondscape management measure?

*If you say "yes" in the question below, the following questions will cover each of these, with one section devoted to a specific management type.*

*By responding "No" to a particular type of NbS, you will skip all the questions regarding this NbS.*

- Yes
- Yes, but the pond/s managed are the exact same ones as the one/s that were created or restored, with the same objectives and the same NCP affected
- No

## 100. Pond infrastructure measures

This section refers to pond infrastructure measures (acting on areas immediately surrounding a pond/s).

In the following sections you will be asked about the other management measures: pond management measures (actions within pond/s) and land-use actions that are needed to ensure the appropriate functioning of a pondscape will be treated in the following two sections.

\* 377. Did you implement pond infrastructure measures (acting on areas immediately surrounding pond)?  
*Pond infrastructure actions refer to those actions that are needed to ensure the appropriate functioning of an individual pond such as access restrictions, development of trails or wildlife observatories, management of riparian vegetation and wetland plants, removal of invasive alien plant species, implementation (or enlarging) of a buffer area immediately surrounding the pond, creation of terrestrial habitats in the vicinity of the pond (e.g. for reptiles or amphibians), removal of hard infrastructure (e.g. concrete edge), etc.*

Yes

No

## 101. Pond infrastructure measures

The following questions concern the pond infrastructure actions that are needed to ensure the appropriate functioning of an individual pond (you responded yes in the previous page).

\* 378. What kind of pond infrastructure measures (acting on areas immediately surrounding pond) were realized?

- Access restrictions, e.g. fencing to prevent access by livestock, dogs, or visitors - or removing fencing to allow livestock access
- Development of trails or wildlife observatories
- Management of riparian vegetation and wetland plants
- Removal of invasive alien plant species
- Implementation (or enlarging) of a buffer area immediately surrounding the pond
- Creation of terrestrial habitats in the vicinity of the pond (e.g. for reptiles or amphibians)
- Removal of hard infrastructure (e.g. concrete edge)
- Other (please specify)

\* 379. What was done exactly, e.g. number of ponds with infrastructure actions, purpose (e.g. leisure, biodiversity)? (max 5000 characters)

380. In what year the negotiation for the implementation of the pond/s infrastructure actions (e.g. political negotiations/site permissions, etc.) and/or the practical implementation of the actions in the pond started? Enter 4-digit birth year; for example, 2005

Comment (if needed)

381. Which was the timeframe for the negotiation for the implementation of the infrastructure actions in the pond/s (e.g. political negotiations/site permissions, etc.), from the idea to the establishment? Please enter the number of months; for example, 3.

Comment (if needed)

382. How long did it take to implement the pond/s infrastructure actions in practice (e.g. digging...)? Please enter the number of months; for example, 3.

Comment (if needed)

383. What kind of stakeholders were involved in the pond/s infrastructure actions and in which way?  
*Skip this stage if you don't have this information.*

|   | Formal involvement (e.g. management, formal decision making, etc.) | Informal role (e.g. volunteer, user, etc.) |
|---|--|--|
| Civil society: citizens and representatives of active associations  | <input type="radio"/>  | <input type="radio"/>                      |
| Policy maker: a person responsible for or involved in formulating policies, especially in politics.   | <input type="radio"/>  | <input type="radio"/>                      |
| Public sector (not policy maker): governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programs, goods, or services | <input type="radio"/>  | <input type="radio"/>                      |
| Private sector: for-profit businesses run by individuals or companies   | <input type="radio"/>  | <input type="radio"/>                      |
| Scientific  | <input type="radio"/>  | <input type="radio"/>                      |

384. How much money, in Euros, did the pond/s infrastructure actions cost?  
*e.g. design, land acquisition/rent, insurance and legal fees, equipment rent/ purchase, construction cost, etc.*  
*Skip this stage if you don't have this information.*

385. Give a description of the costs provided in the previous question (max 1000 characters)  
*Skip this stage if you don't have this information.*

386. Is/are the pond/s generating any revenue?  
*Skip this stage if you don't have this information.*

- Yes
- No
- If yes, how much per year? (in Euros/year)

387. The following questions focus on different Nature's contributions to people (NCP\*) that the actions implemented in the pond/s might have contributed to.

*\*NCP are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people*

Was the "creation of habitat for biodiversity" NCP the objective when implementing actions in this/these pond/s?

*The NCP "creation of habitat for biodiversity" refers to the formation and continued production of habitats for biodiversity. In the case of pondscapes, examples are e.g. growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds and butterflies; nurseries for juvenile stages of fish, etc.*

Yes

No

## 102. Pond infrastructure measures - "creation of habitat for biodiversity" NCP

388. To what degree was the "creation of habitat for biodiversity" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

389. How effective this/these pond/s are at creating habitat for biodiversity?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

390. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

391. Does establishing pond infrastructure measures with the objective of creating habitat for biodiversity negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



392. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of creating of habitat for biodiversity on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

393. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the creation of habitat for biodiversity on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 103. Pond infrastructure measures - "pollination" NCP

\* 394. Was the "pollination" NCP the objective when establishing pond infrastructure measures?

*The NCP "Pollination" refers to the facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae or spores*

Yes

No

## 104. Pond infrastructure measures - "pollination" NCP

395. To what degree was the "pollination" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

396. How effective this/these pond/s are at facilitating pollination?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

397. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

398. Does establishing pond infrastructure measures with the objective of facilitation of pollination negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

399. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of facilitation of pollination on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

400. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the facilitation of pollination on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 105. Pond infrastructure measures - "regulation of climate" NCP

\* 401. Was the "regulation of climate" NCP the objective when establishing pond infrastructure measures? *The NCP "Regulation of climate" refers to the climate regulation by ecosystems (including regulation of global warming). It can be produced through: i) positive or negative effects on emissions of greenhouse gases (e.g. biological carbon storage and sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants*

Yes

No

## 106. Pond infrastructure measures - "regulation of climate" NCP

402. To what degree was the "regulation of climate" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

403. How effective this/these pond/s are at regulating the climate?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

404. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

405. Does establishing pond infrastructure measures with the objective of regulation of climate negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

406. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of regulation of climate on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

407. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the regulation of climate on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 107. Pond infrastructure measures - "regulation of water quantity, location and timing" NCP

\* 408. Was the "regulation of water quantity, location and timing" NCP the objective when establishing pond infrastructure measures?

*The NCP "Regulation of water quantity, location and timing" refers to the: i) regulation, by ponds, of the quantity, location and timing of the flow of surface and groundwater; ii) regulation of flow to water-dependent natural habitats; and iii) modification of groundwater levels*

Yes

No



108. Pond infrastructure measures - "regulation of water quantity, location and timing" NCP

409. To what degree was the "regulation of water quantity, location and timing" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

410. How effective this/these pond/s are at regulating the water quantity, location and timing?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

411. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

412. Does establishing pond infrastructure measures with the objective of regulation of water quantity, location and timing negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

413. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of regulation of water quantity, location and timing on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

414. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the regulation of water quantity, location and timing on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 109. Pond infrastructure measures - "regulation of water quality" NCP

\* 415. Was the "regulation of water quality" NCP the objective when establishing pond infrastructure measures?

*The NCP "Regulation of water quality" refers to the influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals*

Yes

No

## 110. Pond infrastructure measures - "regulation of water quality" NCP

416. To what degree was the "regulation of water quality" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

417. How effective this/these pond/s are at regulating the water quality?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

418. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

419. Does establishing pond infrastructure measures with the objective of regulation of water quality negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

420. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of regulation of water quality on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

421. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the regulation of water quality on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 111. Pond infrastructure measures - "regulation of hazards and extreme events" NCP

\* 422. Was the "regulation of hazards and extreme events" NCP the objective when establishing pond infrastructure measures?

*The NCP "Regulation of hazards and extreme events" refers to the potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.*

Yes

No

## 112. Pond infrastructure measures - "regulation of hazards and extreme events" NCP

423. To what degree was the "regulation of hazards and extreme events" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

424. How effective this/these pond/s are at regulating the hazards and extreme events?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

425. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

426. Does establishing pond infrastructure measures with the objective of regulation of hazards and extreme events negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

427. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of regulation of hazards and extreme events on other NCPs, could you please identify those? For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

428. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the regulation of hazards and extreme events on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown



### 113. Pond infrastructure measures - "food and feed" NCP

\* 429. Was the "food and feed" NCP the objective when establishing pond infrastructure measures?

*The NCP "Food and feed" refers to the: i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g. livestock, work and support animals, pets) or for aquaculture, from the same sources*

Yes

No

## 114. Pond infrastructure measures - "food and feed" NCP

430. To what degree was the "food and feed" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

431. How effective this/these pond/s are at the provision of food and feed?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

432. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

433. Does establishing pond infrastructure measures with the objective of the provision of food and feed negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

434. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of the provision of food and feed on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

435. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the provision of food and feed on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 115. Pond infrastructure measures - "physical and psychological experiences" NCP

\* 436. Was the "physical and psychological experiences" NCP the objective when establishing pond infrastructure measures?

*The NCP "Physical and psychological experiences" refers to the provision by ponds and/or pondsapes of opportunities for physically and psychologically beneficial activities, healing, relaxation, recreation, leisure, tourism and aesthetic enjoyment based on the close contact with nature (e.g. hiking, recreational hunting and fishing, birdwatching, snorkeling, diving, gardening)*

Yes

No

## 116. Pond infrastructure measures - "physical and psychological experiences" NCP

437. To what degree was the "physical and psychological experiences" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

438. How effective this/these pond/s are at facilitating the physical and psychological experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

439. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

440. Does establishing pond infrastructure measures with the objective of facilitating physical and psychological experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

441. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of facilitating physical and psychological experiences on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

442. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the facilitation of physical and psychological experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 117. Pond infrastructure measures - "learning and inspiration experiences" NCP

\* 443. Was the "learning and inspiration experiences" NCP the objective when establishing pond infrastructure measures?

*The NCP "Learning and inspiration experiences" refers to the provision by ponds and/or pondsapes of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g. biomimicry)*

Yes

No

## 118. Pond infrastructure measures - "learning and inspiration experiences" NCP

444. To what degree was the "learning and inspiration experiences" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

445. How effective this/these pond/s are at facilitating the learning and inspiration experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

446. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

447. Does establishing pond infrastructure measures with the objective of facilitating learning and inspiration experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



448. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of facilitating learning and inspiration experiences on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

449. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the facilitation of learning and inspiration experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 119. Pond infrastructure measures - "supporting identities" NCP

\* 450. Was the "supporting identities" NCP the objective when establishing pond infrastructure measures?  
*The NCP "Supporting identities" refers to the ponds and/or pondsapes being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds and/or pondsapes, and iii) source of satisfaction derived from knowing that a particular pond or pondsape exists*

Yes

No

## 120. Pond infrastructure measures - "supporting identities" NCP

451. To what degree was the "supporting identities" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

452. How effective this/these pond/s are at supporting identities?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

453. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

454. Does establishing pond infrastructure measures with the objective of supporting identities negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

455. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of supporting identities on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

456. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures to support identities on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 121. Pond infrastructure measures - "Maintenance of options" NCP

\* 457. Was the "maintenance of options" NCP the objective when establishing pond infrastructure measures?

*The NCP "Maintenance of options" refers to the capacity of ponds and/or pondsapes to keep options open in order to support a good quality of life. For example, benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations and genotypes, including their contributions to the resilience and resistance of pond/pondscape properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondscapes.*

Yes

No

## 122. Pond infrastructure measures - "Maintenance of options" NCP

458. To what degree was the "maintenance of options" NCP the objective when establishing pond infrastructure measures?

0: It was not an objective

3: High degree

459. How effective this/these pond/s are for the maintenance of options?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

460. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

461. Does establishing pond infrastructure measures with the objective of maintenance of options negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

462. If you have confirmed a negative influence of establishing pond infrastructure measures with the objective of maintenance of options on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

463. What is the degree of confidence you have regarding the negative influence of establishing pond infrastructure measures for the maintenance of options on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 123. Pond infrastructure measures - final

\* 464. Cite the sources of the information where the information detailed here comes from (report, journal article, website links, expert notes) or detail whether the information comes from expert evidence (in the case there are not published references)

\* 465. Would you (and your pondscape) be willing to be added as contributor in the European Commission Ponderful deliverable (D4.1. Database on Pondscales) and in the acknowledgements of the scientific publications?

Yes

No

\* 466. Would you like to receive the report that will result from this survey?

Yes

No

If yes, to what email?

467. We aim to get local expertise and knowledge on all these issues, if you know the contact of people who is directly working with created, restored or managed ponds and could also answer this questionnaire, could you please add their names and/or contact?



## 124. Pond management measures

**This section refers to pond management measures (actions within pond/s).**

**In the next section, you will be asked about land-use actions that are needed to ensure the appropriate functioning of a pondscape will be treated in the following two section.**

\* 468. Did you implement management measures within your pond?

- Yes
- Yes, but the pond/s managed are the exact same one/s as the ones where the infrastructure measures were taken, with the same objectives and the same NCP affected
- No

## 125. Pond management measures

The following questions concern the pond management measures (actions within pond) that are needed to ensure the appropriate functioning of an individual pond (you responded "yes" in the previous page)

\* 469. What kind of pond/s management measures (actions within pond/s) were realized?

- Removing invasive alien plant and animal species
- Removing of all fish
- Reintroducing or protecting threatened plant and animal species
- Pond water management, e.g. manage input, output (e.g. sluice repair or adjustments, lining), drying rate
- Routine management actions in relation with the pond design and depth (e.g. slight re-profiling of banks, removal of sediments, creation or removal of an island, scraping edges to maintain populations of pioneer species)
- Mowing and removal of submerged, floating or emergent plants
- Regular monitoring of physical, chemical or biological indicators
- Planting or introducing structured vegetation into ponds (e.g. planted coil rolls)
- Shade management (e.g. a few trees or large % of cover)
- Part-desilt
- Other (please specify)

\* 470. What was done exactly, e.g. number of ponds managed, purpose (e.g. leisure, biodiversity)? (max 5000 characters)

471. In what year the negotiation for the management of the pond/s (e.g. political negotiations/site permissions, etc.) and/or the practical management of the pond started? Enter 4-digit birth year; for example, 2005

Comment (if needed)

472. Which was the timeframe for the negotiation for the management of the pond/s (e.g. political negotiations/site permissions, etc.), from the idea to the establishment? Please enter the number of months; for example, 3.

Comment (if needed)

473. How long did it take to manage the pond/s in practice (e.g. digging...)? Please enter the number of months; for example, 3.

Comment (if needed)

474. What kind of stakeholders were involved in the management of the pond/s and in which way?

*Skip this stage if you don't have this information.*

|   | Formal involvement (e.g. management, formal decision making, etc.) | Informal role (e.g. volunteer, user, etc.) |
|---|--|--|
| Civil society: citizens and representatives of active associations  | <input type="radio"/>  | <input type="radio"/>                      |
| Policy maker: a person responsible for or involved in formulating policies, especially in politics.   | <input type="radio"/>  | <input type="radio"/>                      |
| Public sector (not policy maker): governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programs, goods, or services | <input type="radio"/>  | <input type="radio"/>                      |
| Private sector: for-profit businesses run by individuals or companies   | <input type="radio"/>  | <input type="radio"/>                      |
| Scientific  | <input type="radio"/>  | <input type="radio"/>                      |

475. How much money, in Euros, did the management of the pond/s cost?

*e.g. design, land acquisition/rent, insurance and legal fees, equipment rent/ purchase, construction cost, etc.*

*Skip this stage if you don't have this information.*

476. Give a description of the costs provided in the previous question (max 1000 characters)

*Skip this stage if you don't have this information.*

477. Is/are the pond/s generating any revenue?

*Skip this stage if you don't have this information.*

Yes

No

If yes, how much per year? (in Euros/year)

478. The following questions focus on different Nature's contributions to people (NCP\*) that the pond/s managed might have contributed to.

*\*NCP are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people*

Was the "creation of habitat for biodiversity" NCP the objective when managing this/these pond/s?

*The NCP "creation of habitat for biodiversity" refers to the formation and continued production of habitats for biodiversity. In the case of pondscapes, examples are e.g. growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds and butterflies; nurseries for juvenile stages of fish, etc.*

Yes

No

## 126. Pond management measures - "creation of habitat for biodiversit" NCP

479. To what degree was the "creation of habitat for biodiversity" NCP the objective when managing this/these pond/s?

0: It was not an objective

3: High degree

480. How effective this/these pond/s are at creating habitat for biodiversity?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

481. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

482. Does managing this/these ponds with the objective of creting habitat for biodiversity negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

483. If you have confirmed a negative influence of managing this/these ponds with the objective of creating habitat for biodiversity on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

484. What is the degree of confidence you have regarding the negative influence of managing this/these ponds for the creation of habitat for biodiversity on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 127. Pond management measures - "pollination" NCP

\* 485. Was the "pollination" NCP the objective when managing this/these ponds?

*The NCP "Pollination" refers to the facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae or spores*

Yes

No

## 128. Pond management measures - "pollination" NCP

486. To what degree was the "pollination" NCP the objective when managing this/these ponds?

0: It was not an objective

3: High degree

487. How effective this/these pond/s are at facilitating pollination?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

488. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

489. Does managing this/these ponds with the objective of facilitation of pollination negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



490. If you have confirmed a negative influence of managing this/these ponds with the objective of facilitation of pollination on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

491. What is the degree of confidence you have regarding the negative influence of managing this/these ponds for the facilitation of pollination on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 129. Pond management measures - "regulation of climate" NCP

\* 492. Was the "regulation of climate" NCP the objective when managing this/these ponds?

*The NCP "Regulation of climate" refers to the climate regulation by ecosystems (including regulation of global warming). It can be produced through: i) positive or negative effects on emissions of greenhouse gases (e.g. biological carbon storage and sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants*

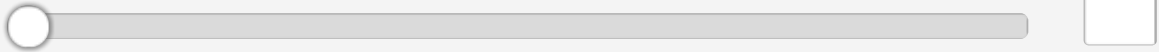
Yes

No

### 130. Pond management measures - "regulation of climate" NCP

493. To what degree was the "regulation of climate" NCP the objective when managing this/these ponds?

0: It was not an objective 3: High degree



494. How effective this/these pond/s are at regulating the climate?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

495. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

496. Does managing this/these ponds with the objective of regulation of climate negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

497. If you have confirmed a negative influence of managing this/these ponds with the objective of regulation of climate on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

498. What is the degree of confidence you have regarding the negative influence of managing this/these ponds for the regulation of climate on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

131. Pond management measures - "regulation of water quantity, location and timing" NCP

\* 499. Was the "regulation of water quantity, location and timing" NCP the objective when managing this/these ponds?

*The NCP "Regulation of water quantity, location and timing" refers to the: i) regulation, by ponds, of the quantity, location and timing of the flow of surface and groundwater; ii) regulation of flow to water-dependent natural habitats; and iii) modification of groundwater levels*

Yes

No

### 132. Pond management measures - "regulation of water quantity, location and timing" NCP

500. To what degree was the "regulation of water quantity, location and timing" NCP the objective when managing this/these ponds?

0: It was not an objective

3: High degree

501. How effective this/these pond/s are at regulating the water quantity, location and timing?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

502. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

503. Does managing this/these ponds with the objective of regulation of water quantity, location and timing negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

504. If you have confirmed a negative influence of managing this/these ponds with the objective of regulation of water quantity, location and timing on other NCPs, could you please identify those? *For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

505. What is the degree of confidence you have regarding the negative influence of managing this/these ponds for the regulation of water quantity, location and timing on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 133. Pond management measures - "regulation of water quality" NCP

\* 506. Was the "regulation of water quality" the objective when managing this/these ponds?

*The NCP "Regulation of water quality" refers to the influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals*

Yes

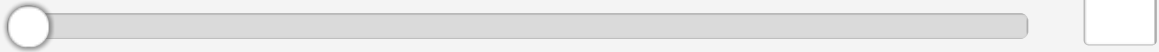
No



### 134. Pond management measures - "regulation of water quality" NCP

507. To what degree was the "regulation of water quality" NCP the objective when managing this/these ponds?

0: It was not an objective 3: High degree



508. How effective this/these pond/s are at managing this/these ponds?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

509. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

510. Does managing this/these ponds with the objective of regulation of water quality negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

511. If you have confirmed a negative influence of managing this/these ponds with the objective of regulation of water quality on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

512. What is the degree of confidence you have regarding the negative influence of managing this/these ponds for the regulation of water quality on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 135. Pond management measures - "regulation of hazards and extreme events" NCP

\* 513. Was the "regulation of hazards and extreme events" NCP the objective when managing this/these ponds?

*The NCP "Regulation of hazards and extreme events" refers to the potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.*

Yes

No

### 136. Pond management measures - "regulation of hazards and extreme events" NCP

514. To what degree was the "regulation of hazards and extreme events" NCP the objective when managing this/these ponds?

0: It was not an objective

3: High degree

515. How effective this/these pond/s are at regulating the hazards and extreme events?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

516. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

517. Does managing this/these ponds with the objective of regulation of hazards and extreme events negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

518. If you have confirmed a negative influence of managing this/these ponds with the objective of regulation of hazards and extreme events on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

519. What is the degree of confidence you have regarding the negative influence of managing this/these ponds for the regulation of hazards and extreme events on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 137. Pond management measures - "food and feed" NCP

\* 520. Was the "food and feed" NCP the objective when managing this/these ponds?

*The NCP "Food and feed" refers to the: i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g. livestock, work and support animals, pets) or for aquaculture, from the same sources*

Yes

No

### 138. Pond management measures - "food and feed" NCP

521. To what degree was the "food and feed" NCP the objective when managing this/these ponds?

0: It was not an objective

3: High degree

522. How effective this/these pond/s are at the provision of food and feed?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

523. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

524. Does managing this/these ponds with the objective of the provision of food and feed negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

525. If you have confirmed a negative influence of managing this/these ponds with the objective of the provision of food and feed on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

526. What is the degree of confidence you have regarding the negative influence of managing this/these ponds for the provision of food and feed on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown



### 139. Pond management measures - "physical and psychological experiences" NCP

\* 527. Was the "physical and psychological experiences" NCP the objective when managing this/these ponds?

*The NCP "Physical and psychological experiences" refers to the provision by ponds and/or pondscares of opportunities for physically and psychologically beneficial activities, healing, relaxation, recreation, leisure, tourism and aesthetic enjoyment based on the close contact with nature (e.g. hiking, recreational hunting and fishing, birdwatching, snorkeling, diving, gardening)*

Yes

No

## 140. Pond management measures - "physical and psychological experiences" NCP

528. To what degree was the "physical and psychological experiences" NCP the objective when managing this/these pond/s?

0: It was not an objective

3: High degree

529. How effective this/these pond/s are at facilitating the physical and psychological experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

530. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

531. Does managing this/these pond/s with the objective of facilitating physical and psychological experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

532. If you have confirmed a negative influence of managing this/these pond/s with the objective of facilitating physical and psychological experiences on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

533. What is the degree of confidence you have regarding the negative influence of managing this/these pond/s for the facilitation of physical and psychological experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 141. Pond management measures - "learning and inspiration experiences" NCP

\* 534. Was the "learning and inspiration experiences" NCP the objective when managing this/these pond/s?

*The NCP "Learning and inspiration experiences" refers to the provision by ponds and/or pondsapes of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g. biomimicry)*

Yes

No

## 142. Pond management measures - "learning and inspiration experiences" NCP

535. To what degree was the "learning and inspiration experiences" NCP the objective when managing this/these pond/s?

0: It was not an objective

3: High degree

536. How effective this/these pond/s are at facilitating the learning and inspiration experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

537. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

538. Does managing this/these pond/s with the objective of facilitating learning and inspiration experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

539. If you have confirmed a negative influence of managing this/these pond/s with the objective of facilitating learning and inspiration experiences on other NCPs, could you please identify those? For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

540. What is the degree of confidence you have regarding the negative influence of managing this/these pond/s for the facilitation of learning and inspiration experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 143. Pond management measures - "supporting identities" NCP

\* 541. Was the "supporting identities" NCP the objective when managing this/these pond/s?

*The NCP "Supporting identities" refers to the ponds and/or pondsapes being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds and/or pondsapes, and iii) source of satisfaction derived from knowing that a particular pond or pondsape exists*

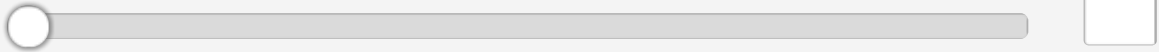
Yes

No

## 144. Pond management measures - "supporting identities" NCP

542. To what degree was the "supporting identities" NCP the objective when managing this/these pond/s?

0: It was not an objective 3: High degree



543. How effective this/these pond/s are at supporting identities?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

544. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

545. Does managing this/these pond/s with the objective of supporting identities negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



546. If you have confirmed a negative influence of managing this/these pond/s with the objective of supporting identities on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

547. What is the degree of confidence you have regarding the negative influence of managing this/these pond/s to support identities on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

#### 145. Pond management measures - "Maintenance of options" NCP

\* 548. Was the "maintenance of options" NCP the objective when managing this/these pond/s?

*The NCP "Maintenance of options" refers to the capacity of ponds and/or pondsapes to keep options open in order to support a good quality of life. For example, benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations and genotypes, including their contributions to the resilience and resistance of pond/pondscape properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondscapes.*

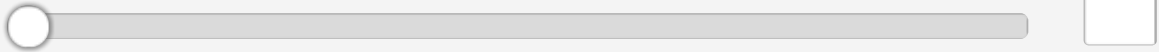
Yes

No

## 146. Pond management measures - "Maintenance of options" NCP

549. To what degree was the "maintenance of options" NCP the objective when managing this/these pond/s?

0: It was not an objective 3: High degree



550. How effective this/these pond/s are for the maintenance of options?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

551. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

552. Does managing this/these pond/s with the objective of maintenance of options negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

553. If you have confirmed a negative influence of managing this/these pond/s with the objective of maintenance of options on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

554. What is the degree of confidence you have regarding the negative influence of managing this/these pond/s for the maintenance of options on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 147. Pond management measures - final

\* 555. Cite the sources of the information where the information detailed here comes from (report, journal article, website links, expert notes) or detail whether the information comes from expert evidence (in the case there are not published references)

\* 556. Would you (and your pondscape) be willing to be added as contributor in the European Commission Ponderful deliverable (D4.1. Database on Pondscales) and in the acknowledgements of the scientific publications?

Yes

No

\* 557. Would you like to receive the report that will result from this survey?

Yes

No

If yes, to what email?

558. We aim to get local expertise and knowledge on all these issues, if you know the contact of people who is directly working with created, restored or managed ponds and could also answer this questionnaire, could you please add their names and/or contact?

## 148. Pondscape land-use actions

**This section refers to the pondscape land-use actions that are needed to ensure the appropriate functioning of a pondscape (ponds and surrounding landscape).**

\* 559. Did you realize pondscape scale land-use actions?

Yes

No

## 149. Pondscape land-use actions

The following questions concern pondscape land-use actions that are needed to ensure the appropriate functioning of a pondscape (ponds and surrounding landscape) (you responded "yes" in the previous page)

\* 560. What kind of pondscape scale land-use and management actions were realized?

- Placing the pondscape (or a part of the pondscape) under protective status (e.g. protected areas regulations)
- Changing land use in the pondscape and in the area surrounding the pondscape (e.g. convert arable land or intensive livestock grazing area to extensive grassland; decrease impervious surfaces e.g. asphalt in neighboring areas).
- Enhancing the connectivity between ponds or pondsapes. This involves the creation of terrestrial or aquatic corridors, removing obstacles, or active transport of propagules.
- Other (please specify)

\* 561. What was done exactly, e.g. land use managed, purpose (e.g. leisure, biodiversity)? (max 5000 characters)

562. In what year the negotiation for the pondscape management actions (e.g. political negotiations/site permissions, etc.) and/or the practical implementation of the pondscape management actions started? Enter 4-digit birth year; for example, 2005

Comment (if needed)

563. Which was the timeframe for the negotiation for the pondscape management (e.g. political negotiations/site permissions, etc.), from the idea to the establishment? Please enter the number of months; for example, 3.

Comment (if needed)

564. How long did it take to manage the pondscape in practice (e.g. digging...)? Please enter the number of months; for example, 3.

565. What kind of stakeholders were involved in the management of the pondscape and in which way?  
*Skip this stage if you don't have this information.*

|   | Formal involvement (e.g. management, formal decision making, etc.) | Informal role (e.g. volunteer, user, etc.) |
|---|--|--|
| Civil society: citizens and representatives of active associations  | <input type="radio"/>  | <input type="radio"/>                      |
| Policy maker: a person responsible for or involved in formulating policies, especially in politics.   | <input type="radio"/>  | <input type="radio"/>                      |
| Public sector (not policy maker): governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programs, goods, or services | <input type="radio"/>  | <input type="radio"/>                      |
| Private sector: for-profit businesses run by individuals or companies   | <input type="radio"/>  | <input type="radio"/>                      |
| Scientific  | <input type="radio"/>  | <input type="radio"/>                      |

566. How much money, in Euros, did the management of the pondscape cost?  
*e.g. design, land acquisition/rent, insurance and legal fees, equipment rent/ purchase, construction cost, etc.*

*Skip this stage if you don't have this information.*

567. Give a description of the costs provided in the previous question (max 1000 characters)

*Skip this stage if you don't have this information.*

568. Is/are the pond/s generating any revenue?

*Skip this stage if you don't have this information.*

- Yes
- No
- If yes, how much per year? (in Euros/year)



569. The following questions focus on different Nature's contributions to people (NCP\*) that the pondscape managed might have contributed to.

*\*NCP are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people*

Was the "creation of habitat for biodiversity" NCP the objective when managing this pondscape?

*The NCP "creation of habitat for biodiversity" refers to the formation and continued production of habitats for biodiversity. In the case of pondscales, examples are e.g. growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds and butterflies; nurseries for juvenile stages of fish, etc.*

Yes

No

## 150. Pondscape land-use actions - "creation of habitat for biodiversity" NCP

570. To what degree was the "creation and maintenance of habitat" NCP the objective when managing this pondscape?

0: It was not an objective

3: High degree

571. How effective this/these pond/s are at creating and maintaining habitat?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

572. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

573. Does managing this pondscape with the objective of creating or maintaining habitat negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

574. If you have confirmed a negative influence of managing this pondscape with the objective of creating and maintenance of habitat on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

575. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the creation or maintenance of habitat on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 151. Pondscape land-use actions - "pollination" NCP

\* 576. Was the "pollination" NCP the objective when managing this pondscape?

*The NCP "Pollination" refers to the facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae or spores*

Yes

No

## 152. Pondscape land-use actions - "pollination" NCP

577. To what degree was the "pollination" NCP the objective when managing this pondscape?

0: It was not an objective

3: High degree

578. How effective this/these pond/s are at facilitating pollination?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

579. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

580. Does managing this pondscape with the objective of facilitation of pollination negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

581. If you have confirmed a negative influence of managing this pondscape with the objective of facilitation of pollination on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

582. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the facilitation of pollination on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 153. Pondscape land-use actions - "regulation of climate" NCP

\* 583. Was the "regulation of climate" NCP the objective when managing this pondscape?

*The NCP "Regulation of climate" refers to the climate regulation by ecosystems (including regulation of global warming). It can be produced through: i) positive or negative effects on emissions of greenhouse gases (e.g. biological carbon storage and sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants*

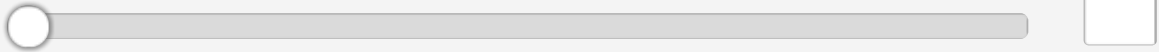
Yes

No

154. Pondscape land-use actions - "regulation of climate" NCP

584. To what degree was the "regulation of climate" NCP the objective when managing this pondscape?

0: It was not an objective 3: High degree



585. How effective this/these pond/s are at regulating the climate?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

586. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

587. Does managing this pondscape with the objective of regulation of climate negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



588. If you have confirmed a negative influence of managing this pondscape with the objective of regulation of climate on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

589. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the regulation of climate on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 155. Pondscape land-use actions - "regulation of water quantity, location and timing" NCP

\* 590. Was the "regulation of water quantity, location and timing" NCP the objective when managing this pondscape?

*The NCP "Regulation of water quantity, location and timing" refers to the: i) regulation, by ponds, of the quantity, location and timing of the flow of surface and groundwater; ii) regulation of flow to water-dependent natural habitats; and iii) modification of groundwater levels*

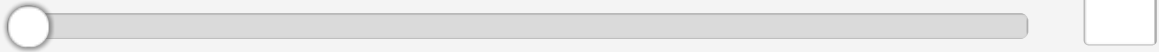
Yes

No

156. Pondscape land-use actions - "regulation of water quantity, location and timing" NCP

591. To what degree was the "regulation of water quantity, location and timing" NCP the objective when managing this pondscape?

0: It was not an objective 3: High degree



592. How effective this/these pond/s are at regulating the water quantity, location and timing?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

593. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

594. Does managing this pondscape with the objective of regulation of water quantity, location and timing negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

595. If you have confirmed a negative influence of managing this pondscape with the objective of regulation of water quantity, location and timing on other NCPs, could you please identify those? *For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

596. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the regulation of water quantity, location and timing on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

157. Pondscape land-use actions - "regulation of water quality" NCP

\* 597. Was the "regulation of water quality" NCP the objective when managing this pondscape?

*The NCP "Regulation of water quality" refers to the influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals*

Yes

No

## 158. Pondscape land-use actions - "regulation of water quality" NCP

598. To what degree was the "regulation of water quality" NCP the objective when managing this pondscape?

0: It was not an objective

3: High degree

599. How effective this/these pond/s are at regulating the water quality?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

600. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

601. Does managing this pondscape with the objective of regulation of water quality negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

602. If you have confirmed a negative influence of managing this pondscape with the objective of regulation of water quality on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

603. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the regulation of water quality on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

159. Pondscape land-use actions - "regulation of hazards and extreme events" NCP

\* 604. Was the "regulation of hazards and extreme events" NCP the objective when managing this pondscape?

*The NCP "Regulation of hazards and extreme events" refers to the potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.*

Yes

No

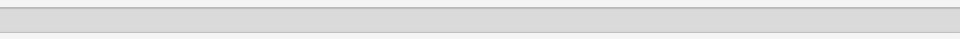


## 160. Pondscape land-use actions - "regulation of hazards and extreme events" NCP

605. To what degree was the "regulation of hazards and extreme events" NCP the objective when managing this pondscape?

0: It was not an objective

3: High degree



606. How effective this/these pond/s are at regulating the hazards and extreme events?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

607. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

608. Does managing this pondscape with the objective of regulation of hazards and extreme events negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

609. If you have confirmed a negative influence of managing this pondscape with the objective of regulation of hazards and extreme events on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

610. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the regulation of hazards and extreme events on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 161. Pondscape land-use actions - "food and feed" NCP

\* 611. Was the "food and feed" NCP the objective when managing this pondscape?

*The NCP "Food and feed" refers to the: i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g. livestock, work and support animals, pets) or for aquaculture, from the same sources*

Yes

No

## 162. Pondscape land-use actions - "food and feed" NCP

612. To what degree was the "food and feed" NCP the objective when managing this pondscape?

0: It was not an objective

3: High degree

613. How effective this/these pond/s are at the provision of food and feed?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

614. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

615. Does managing this pondscape with the objective of the provision of food and feed negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

616. If you have confirmed a negative influence of managing this pondscape with the objective of the provision of food and feed on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

617. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the provision of food and feed on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

### 163. Pondscape land-use actions - "physical and psychological experiences" NCP

\* 618. Was the "physical and psychological experiences" NCP the objective when managing this pondscape?

*The NCP "Physical and psychological experiences" refers to the provision by ponds and/or pondsapes of opportunities for physically and psychologically beneficial activities, healing, relaxation, recreation, leisure, tourism and aesthetic enjoyment based on the close contact with nature (e.g. hiking, recreational hunting and fishing, birdwatching, snorkeling, diving, gardening)*

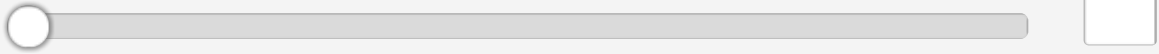
Yes

No

164. Pondscape land-use actions - "physical and psychological experiences" NCP

619. To what degree was the "physical and psychological experiences" NCP the objective when managing this pondscape?

0: It was not an objective 3: High degree



620. How effective this/these pond/s are at facilitating the physical and psychological experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

621. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

622. Does managing this pondscape with the objective of facilitating physical and psychological experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

623. If you have confirmed a negative influence of managing this pondscape with the objective of facilitating physical and psychological experiences on other NCPs, could you please identify those? *For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: ccreation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

624. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the facilitation of physical and psychological experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown



## 165. Pondscape land-use actions - "learning and inspiration experiences" NCP

\* 625. Was the "learning and inspiration experiences" NCP the objective when managing this pondscape?  
*The NCP "Learning and inspiration experiences" refers to the provision by ponds and/or pondsapes of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g. biomimicry)*

Yes

No

## 166. Pondscape land-use actions - "learning and inspiration experiences" NCP

626. To what degree was the "learning and inspiration experiences" NCP the objective when managing this pondscape?

0: It was not an objective

3: High degree

627. How effective this/these pond/s are at facilitating the learning and inspiration experiences?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

628. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

629. Does managing this pondscape with the objective of facilitating learning and inspiration experiences negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

630. If you have confirmed a negative influence of managing this pondscape with the objective of facilitating learning and inspiration experiences on other NCPs, could you please identify those?  
*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

631. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the facilitation of learning and inspiration experiences on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 167. Pondscape land-use actions - "supporting identities" NCP

\* 632. Was the "supporting identities" NCP the objective when managing this pondscape?

*The NCP "Supporting identities" refers to the ponds and/or pondsapes being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds and/or pondsapes, and iii) source of satisfaction derived from knowing that a particular pond or pondscape exists*

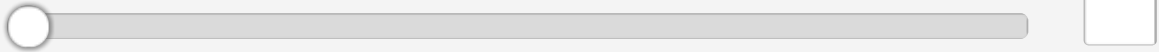
Yes

No

## 168. Pondscape land-use actions - "supporting identities" NCP

633. To what degree was the "supporting identities" NCP the objective when managing this pondscape?

0: It was not an objective 3: High degree



634. How effective this/these pond/s are at supporting identities?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

635. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

636. Does managing this pondscape with the objective of supporting identities negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown

637. If you have confirmed a negative influence of managing this pondscape with the objective of supporting identities on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

638. What is the degree of confidence you have regarding the negative influence of managing this pondscape to support identities on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 169. Pondscape land-use actions - "Maintenance of options" NCP

\* 639. Was the "maintenance of options" NCP the objective when managing this pondscape?

*The NCP "Maintenance of options" refers to the capacity of ponds and/or pondsapes to keep options open in order to support a good quality of life. For example, benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations and genotypes, including their contributions to the resilience and resistance of pond/pondscape properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondscapes.*

Yes

No

## 170. Pondscape land-use actions - "Maintenance of options" NCP

640. To what degree was the "maintenance of options" NCP the objective when managing this pondscape?

0: It was not an objective

3: High degree

641. How effective this/these pond/s are for the maintenance of options?

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not at all effective
- Unknown

642. What is the degree of confidence you have to your previous answer?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

643. Does managing this pondscape with the objective of maintenance of options negatively influence the delivery of any other NCPs?

- No negative influences on other NCPs
- Some negative influences on other NCPs
- Many negative influences on other NCPs
- Unknown



644. If you have confirmed a negative influence of managing this pondscape with the objective of maintenance of options on other NCPs, could you please identify those?

*For example, (in the case of NCP: regulation of water quantity) a pond that has been digged, now has water for longer time but some macrophyte species have disappeared because they were related to more ephemeral conditions (IN THE CHECKBOXES SELECT NCP: creation of habitat for biodiversity).*

- Habitat creation for biodiversity
- Pollination
- Regulation of climate (including regulation of global warming)
- Regulation of water quantity (flow of surface and groundwater)
- Regulation of water quality (e.g. for downstream areas)
- Regulation of hazards and extreme events (e.g. floods, heat waves, fires, seawater intrusion, tidal waves)
- Food and feed (e.g. production of fish, crayfish, frogs, livestock, game, crops, wild plants, production of feed (forage) for domesticated animals)
- Physical and psychological experiences (e.g. relaxation, recreation, tourism and aesthetic enjoyment, hiking, recreational hunting and fishing, birdwatching)
- Learning and inspiration (e.g. education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art)
- Supporting identities (basis for social-cohesion experiences)
- Maintenance of options (to keep options open in order to support a good quality of life)

645. What is the degree of confidence you have regarding the negative influence of managing this pondscape for the maintenance of options on the delivery of NCPs (your answer to the question above)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident
- Unknown

## 171. Pondscape land-use actions - final

\* 646. Cite the sources of the information where the information detailed here comes from (report, journal article, website links, expert notes) or detail whether the information comes from expert evidence (in the case there are not published references)

\* 647. Would you (and your pondscape) be willing to be added as contributor in the European Comission Ponderful deliverable (D4.1. Database on Pondscales) and in the acknowledgements of the scientific publications?

Yes

No

\* 648. Would you like to receive the report that will result from this survey?

Yes

No

If yes, to what email?

649. We aim to get local expertise and knowledge on all these issues, if you know the contact of people who is directly working with created, restored or managed ponds and could also answer this questionnaire, could you please add their names and/or contact?

## 172. Indicators Optional

### THIS SECTION IS OPTIONAL: Quantitative indicators for NCPs

Select in the following questions the indicators for which you have precise information for your pond/pondscape

650. Creation and maintenance of habitat: select the indicators for which you have precise information for your pond/pondscape

- Plant species richness (submerged, floating, helophytes), including Charophytes
- Water bird species richness (nesting, mating, overwintering)
- Zooplankton richness (Crustacean; Rotifera)
- Amphibian species richness
- Dragonfly species richness
- Fishes with juveniles stages species richness
- Number of mesohabitats for invertebrates
- Number of families of invertebrates belonging to Ephemeroptera, Plecoptera, Trichoptera, Odonata, Coleoptera and Gastropoda. (aquatic stages)
- Number of species of invertebrates belonging to Ephemeroptera, Plecoptera, Trichoptera, Odonata, Coleoptera and Gastropoda. (aquatic stages)
- Number of conservation priority species (N)
- Conservation score: total value for the pondscape
- Conservation score: mean value per spp.
- Number of invasive alien species (N)
- Proportion of regional species richness (for each taxonomic group whose species richness is measured)
- Structural connectivity (ha)
- Functional connectivity (ha)
- Other (please specify)

651. Pollination: select the indicators for which you have information for your pond/pondscape

- Number of pollinator species
- Abundance of pollinators
- Other (please specify)

652. Regulation of climate: select the indicators for which you have information for your pond/pondscape

- Air temperature reduction (temperature variation between inside and outside the pondscape, or between on top and next to your pond)
- Total carbon removed or stored in vegetation and soil per unit area per unit time (kg/ha/y)
- Capacity of C storage (by primary production, by organic matter accumulation)
- Capacity of GHG sequestration
- Total carbon stored in vegetation (kg/ha/y)
- Rate of sediment carbon decomposition (% p.a.)
- Sediment carbon content (Kg/ha/y)
- Other (please specify)

653. Regulation of water quantity, location and timing: select the indicators for which you have information for your pond/pondscape

- Total of water volume stored in the pond or pondscape (cummulative volume of all ponds)
- Intensity of regulation of flow to water dependent habitat downstream
- Water level in one or several ponds (cm)
- Duration and frequency of hydroperiod in temporary systems
- Water storage used for irrigation
- Water storage used as a drinking source of livestock
- Pond land use intensity (High, Medium, Low) (in a 200m radius of each pond)
- Recharge of groundwater
- Other (please specify)

654. Regulation of water quality: select the indicators for which you have information for your pond/pondscape

- Metabolization and stocking of N and P (g/m<sup>3</sup>/y)
- Number of chemicals (including pesticides) intercepted by pondscape
- Concentrations of chemicals intercepted / metabolized (g/m<sup>3</sup>/y)
- Water quality: total suspended solid content (mg/L)
- Total faecal coliform bacteria content of pondscape effluents
- Nitrogen and phosphorus concentration or load (%)
- Metal concentration or load (%)
- Other (please specify)

655. Regulation of hazards and extreme events: select the indicators for which you have information for your pond/pondscape

- Volume of water stocked during a severe flooding linked to storms or to marine water intrusion (m<sup>3</sup>/event)
- Use for fire-fighting
- Flood peak reduction (%)
- Peak flow variation (%)
- Surface runoff in relation to precipitation quantity (mm/%)
- Other (please specify)

656. Food and feed: select the indicators for which you have information for your pond/pondscape

- Productivity (kg/ha/y) of food for humans from wild animals (fish, birds,...)
- Productivity of domesticated animals living in the pondscape (fish, cattle) (kg/y)
- Productivity of salt
- Productivity of plants (e.g. watercress)
- Volume of water supply (for humans and/or livestock)
- Other (please specify)

657. Physical and psychological experience: select the indicators for which you have information for your pond/pondscape

- Number of persons frequenting the pondscape for leisure (walking, hiking, cycling, relax, picnic)
- Number of persons frequenting the pondscape for tourism
- Number of persons frequenting the pondscape for fishing
- Number of persons frequenting the pondscape for bird watching or nature watching
- Number of hunters
- Number of clean-up operations
- Area inside the pondscape accessible to the public (% of the pondscape area)
- "Pondscape area"/"total green regional area" (% of the surface area)
- Self-reported satisfaction/wellbeing (scale)
- Other (please specify)

658. Learning and inspiration: select the indicators for which you have information for your pond/pondscape

- Number of artistic productions
- Number of studies driven for acquisition of knowledge
- Number of school/university students visiting the pondscape
- Number of mobilised animators of environmental education
- Citizen involvement in environmental education activities (N of people)
- Other (please specify)

659. Supporting identities: select the indicators for which you have information for your pond/pondscape

- Level of belonging /rootedness / connectedness associated with the pondscape (scale 1-10?)
- Number of celebrations, rituals or narratives linked to the pondscape (N/y)
- number of quotations into social networks and mass media (press etc.)
- Number of new jobs created
- Number of involved actors in the cultural heritage protection
- Number of projects with a participatory process
- Proportion of citizens involved in participatory processes (%)
- Sense of empowerment: perceived control and influence over decision-making (0-5)
- Policy learning for mainstreaming NbS: Number of new policies instituted (N)
- Trust in decision-making procedure and decision-makers (%)
- Other (please specify)

660. Maintenance of options: select the indicators for which you have information for your pond/pondscape

- Level of resilience of the ecosystems for hosting the same species during a long time
- Future benefits linked to changes of species linked to ongoing biological evolution
- Other (please specify)

661. Physical and chemical variables: select the indicators for which you have information for your pond/pondscape

- Amount of suspended matter, water turbidity and chemical variables (nutrients, alkalinity, sulphates, chlorides and hardness)
- Chlorophyll a and phycocyanine
- Conductivity, pH, oxygen concentration (+ saturation), water temperature
- Hydroperiod (permanent/temporary), length of hydroperiod
- Water depth and surface
- Water availability and storage capacity
- Other (please specify)

662. Could we could contact you to get some of this specific data?

- Yes
- No

173. FINAL

**Thank you for your feedback. We really appreciate your time.**

**If you would like to further increase the visibility of your case study and expand the database of case studies on different challenges, you can submit your case study to the NetworkNature, [here](#).**



## Appendix 2

## **Guide to navigate the survey on ponds as Nature-based Solution (NBS)**

### **Key concepts**

- Nature-based Solutions (NBS) are defined by IUCN as “actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”.
- Nature's contributions to people (NCP) are defined by IPBES as "all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people"
- Pondscares are defined as ponds in a landscape.

### **Explanation of NBSs**

The survey is structure in section, you will be asked about your chosen example of NbS implemented, that can be a (i) Pond/pondscape creation, or a (ii) Pond/pondscape restoration, or a (iii) Pond/pondscape management. You need to have at least one of these NbS (i/ii/iii) implemented in your pondscape.

#### **I. Pond/pondscape creation**

- a. Is your chosen example of NBS the creation of a pond or several ponds in your pondscape? *e.g. creating one or several ponds in a site where there was formerly no waterbody.*

#### **II. Pond/pondscape restoration**

- a. *e.g. digging a pond in a place where formerly a pond was existing; regenerating a landfilled pond; undertaking important transformations on an existing pond that was functionally lost (e.g. depth, morphometry, slopes, shoreline design, flora or fauna)*

#### **III. Pond/pondscape management**

- a. Pond/pondscape management refer to i) those pond infrastructure measures (acting on areas immediately surrounding a pond/s), ii) pond management measures (actions within pond/s) and ii) land-use actions that are needed to ensure the appropriate functioning of a pondscape; *e.g. removing some vegetation or tree shade, removing or introducing species, water management, etc. They can be local (pond scale, e.g. small-scale) or regional (pondscape, e.g. large-scale), or both.*

Questions 1 to 11 general questions

Questions 12 to 21 **NBS = pond/s creation**

Questions 22 to 98 questions focus on different Nature's contributions to people (NCP) that the pond/s created might have contributed to.

**Most questions will be skip, as you have to choose NCP options (explained in detailed ate the end of the file):**

- 1) "creating habitat for biodiversity" questions 22 to 28
- 2) "pollination" questions 29 to 35
- 3) "regulation of climate" questions 36 to 42
- 4) "regulation of water quantity, location and timing" questions 43 to 49
- 5) "regulation of water quality" questions 50 to 56
- 6) "regulation of hazards and extreme events" questions 57 to 63
- 7) "food and feed" questions 64 to 70
- 8) "physical and psychological experiences" questions 71 to 77
- 9) "learning and inspiration experiences" questions 78 to 84
- 10)"supporting identities" questions 85 to 91
- 11)"Maintenance of options" questions 92 to 98

Questions 99 to 102 general questions, citations, contributor info, etc

Questions 103 to 284 if you created more than one pond or set of ponds with another purpose (different NCP) the questions are the same as above for the second pond/s again you'll skip most of them just answering the ones connected with the NCP option related to your ponds/s creation

You will find the same structure described above if you select **NBS = Pond/s restoration** or if you select one of the three options of **NBS = Pond/pondscape management i) pond infrastructure measures, ii) pond management measures (actions within pond/s) and iii) land-use actions.**

Questions 650 to 662 **THIS SECTION IS OPTIONAL: Quantitative indicators for NCPs**

### **Explanation of nature contributions to people (NCPs)**

- 1) "*creation of habitat for biodiversity*" refers to the formation and continued production of habitats for biodiversity. In the case of pondscapes, examples are e.g. growing sites for plants; nesting, feeding, and mating sites for animals; resting and overwintering areas for migratory mammals, birds and butterflies; nurseries for juvenile stages of fish, etc.
- 2) "*Pollination*" refers to the facilitation of transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization, and dispersal of seeds, larvae or spores
- 3) "*Regulation of climate*" refers to the climate regulation by ecosystems (including regulation of global warming). It can be produced through: i) positive or negative

effects on emissions of greenhouse gases (e.g. biological carbon storage and sequestration; methane emissions from wetlands), and ii) direct and indirect processes involving biogenic volatile organic compounds (BVOC), and regulation of aerosols and aerosol precursors by phytoplankton and terrestrial plants

- 4) "*Regulation of water quantity, location and timing*" refers to the: i) regulation, by ponds, of the quantity, location and timing of the flow of surface and groundwater; ii) regulation of flow to water dependent natural habitats; and iii) modification of groundwater levels
- 5) "*Regulation of water quality*" refers to the influence of ponds on water quality through filtration of particles, pathogens, excess nutrients, and other chemicals
- 6) "*Regulation of hazards and extreme events*" refers to the potential of ponds to mitigate the impacts of floods, storms, heat waves, fires, seawater intrusion, tidal waves, etc.
- 7) "Food and feed" refers to the: i) production of food from wild, managed, or domesticated organisms, such as fish, crayfish, beef, game, dairy products, edible crops, wild plants, and ii) production of feed (forage and fodder) for domesticated animals (e.g. livestock, work and support animals, pets) or for aquaculture, from the same sources
- 8) "*Physical and psychological experiences*" refers to the provision by ponds and/or pondscales of opportunities for physically and psychologically beneficial activities, healing, relaxation, ecreation, leisure, tourism and aesthetic enjoyment based on the close contact with nature (e.g. hiking, recreational hunting and fishing, birdwatching, snorkeling, diving, gardening)
- 9) "*Learning and inspiration experiences*" refers to the provision by ponds and/or pondscales of opportunities for the development of the capabilities that allow humans to prosper through education, acquisition of knowledge and development of skills for well-being, information, and inspiration for art and technological design (e.g. biomimicry)
- 10) "*Supporting identities*" refers to the ponds and/or pondscales being the basis for religious, spiritual, and social-cohesion experiences: i) provisioning of opportunities by nature for people to develop a sense of place, belonging, rootedness or connectedness, associated with different entities of the living world (e. g. cultural, sacred and heritage landscapes, sounds, scents and sights associated with childhood experiences, iconic animals or flowers), ii) basis for narratives, rituals and celebrations provided by ponds and/or pondscales, and iii) source of satisfaction derived from knowing that a particular pond or pondscape exists
- 11) "*Maintenance of options*" refers to the capacity of ponds and/or pondscales to keep options open in order to support a good quality of life. For example, benefits (including those of future generations) associated with the continued existence of a wide variety of species, populations and genotypes, including their contributions to the resilience and resistance of pond/pondscale properties in the face of environmental change and variability; or future benefits (or threats) derived from keeping options open for yet unknown discoveries and unanticipated uses of particular ponds/pondscales.

Appendix 3: [Appendix 3 \(D4.1\).mp4](#)