



Deliverable 5.9

First Annual Review and Update of the Plan for the Exploitation and Dissemination of Results (PEDR) and Communication Plan

> 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

Ponderful Partners:



University of Vic – Central University of Catalonia (Spain) – Prof. Sandra Brucet (PI, Project coordinator), Dr. Diana van Gent (Project Manager)

IGB im Forschungsverbund Berlin (Germany) – Dr. Thomas Mehner (PI, Task lead 2.4)

Katholieke Universiteit Leuven (Belgium) – Prof. Luc De Meester (PI, WP2 coordinator)

Haute Ecole Spécialisée de Suisse occidentale (Switzerland) - Prof. Beat Oertli (PI, WP4 coordinator)

Universitat de Girona (Spain) – Dr. Dani Boix (PI)

Ecologic Institut gemeinnützige GmbH (Germany) – Dr. Manuel Lago (PI, Task lead 1.4)

University College London (UK) - Dr. Carl Sayer (PI)

Middle East Technical University (Turkey) – Prof. Meryem Beklioğlu (PI)

CIIMAR - Interdisciplinary Centre of Marine and Environmental Research (Portugal) – Dr. José Teixeira (PI, WP5 co-coordinator)

Aarhus University (Denmark) - Dr. Thomas A. Davidson (PI)

Uppsala University (Sweden) – Prof. Malgorzata Blicharska (PI)

Bangor University (UK) - Dr. Isabel Rosa (PI)

Technical University of Munich (Germany) - Prof. Johannes Sauer (PI, Task lead 1.6)

I.S.A.R.A. - Institut Supérieur d'Agriculture Rhône-Alpes (France) - Dr. Joël Robin (PI)

Freshwater Habitats Trust (UK) - Dr. Jeremy Biggs (PI, WP5 co-coordinator)

Universidad de la República (Uruguay) - Prof. Matías Arim (PI)

Randbee Consultants SL (Spain) - Juan Arevalo Torres (PI)

Amphi International APS (Denmark) – Lars Briggs (PI, Task lead 5.4)



Authors:

Dr Jeremy Biggs and Francesca Dunn, Freshwater Habitats Trust

Document title: Deliverable D5.9 First annual review and update of the Plan for the Exploitation and Dissemination of Results (PEDR) and Communication Plan **Document Type:** Deliverable

WP No: 5 WP Title: Communication, Dissemination and Exploitation WP Lead: FHT

Date: 26 Nov 2021 Document Status: Final version



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No ID869296

Disclaimer: Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the following information. The views expressed in this publication are the sole responsibility of the authors and do not necessarily reflect the views of the European Commission.



Table of contents

Part 1: Review and Update of Plan for the Exploitation and Dissemination of Results (PEDR)

1.	INTRODUCTION	4
2.	Measures to be applied	7
3.	Measures after the project (project legacy)	9
Table ^r for the	1. Register of potential end-users using UK examples as a template e project	5
Table 2 dissem applica	2. Summary of outputs and products that will be ninated/exploited by the project and end-users, post-project ations and estimated legacy duration in years	10

Part 2: Review and Update of Communications Plan

1.	INTRODUCTION	14	
2.	Objectives	15	
3.	Audience	16	
Apper summ	Appendix 1. Implementation of the Communications Plan: text from WP5 17 summarising the approach to be taken		
Apper	dix 2. Table of deliverables	23	
Apper	idix 3. Our approach to knowledge management and protection	24	

Part 1: Review and Update of Plan for the Exploitation and Dissemination of Results (PEDR)

1.Introduction

The **First annual review and update of the Plan for the Exploitation and Dissemination of Results (PEDR)** is part of a regular updating of the first output of PONDERFUL WP5 (Task 5.1), the preparation of the project's original PEDR.

The PEDR describes **the ways in which the project's knowledge will be practically and commercially exploited to maximise the impact of our work**. The PEDR guides our work to ensure that the benefits of PONDERFUL are available to the largest number of EU policy makers, practitioners and citizens, and to ensure that the fruits of the research are exploited widely to benefit European society as a whole.

In this first annual update, we have reviewed the suitability of the original proposals and note whether they will continue to be used or modified (see Table 2.2a). In each section of the PEDR we have noted any modifications in the light of experience in Year 1. The main update is to note the additional exploitation and dissemination that will accompany the extended project clustering programme which was extended after the first version of the PEDR was written. Revisions to the PEDR are shown in blue text.

The PEDR provides a route map for the transfer of **new knowledge**, through research, policy, business and practical routes, with special emphasis on reaching practical **users** as these have the most impact on where change (exploitation) actually occurs. The PEDR will **translate new knowledge in three key areas**:

(i) the continent-wide role of ponds in protecting freshwater biodiversity,

- (ii) the links between freshwater biodiversity and ES delivery and
- (iii) the impact of ponds on CC mitigation and adaptation.

When implementing the PEDR we will also set out the measures we will take to help practitioners maximise the benefits of the potential paradigm shift in water management we expect when small waters are fully incorporated into environmental management.

The PEDR summarises **the type and quantity of benefits** we will be delivering in four main categories: scientific knowledge, policy makers, practitioner actions and informing end-users. These are:

• **Scientific knowledge**: Publications and person-to-person presentations will be planned to achieve maximum benefits with exposure in journals/conferences which strategically create the maximum impact for the project (e.g. plenary presentations,

key audiences, conference scale). The overall number of publications will be >100 in 8 years with 30+ in high impact journals.

- **Policy makers**: We will run national or regional policy maker workshops to exchange project outcomes, including use of the DEMO site work, to maximise interactions. We will aim to establish specific activity programmes with RAMSAR and the European Environment Bureau Water Working Group who have good working relationships with European policy makers. *We will also seek opportunities to engage with legislators in national and European parliaments*.
- **Practitioner actions**: We will hold regional and/or national meetings and workshops with key practitioners and stakeholders (principally in WP 1) bringing together groups concerned with land and water management sectors (farming, forest, water, nature, climate) who often have similar but non-aligned aims.
- Informing end users: As part of the project we will maintain a live list of end-users and stakeholders which will facilitate a strategic approach to the dissemination, exploitation and communication programmes (Deliverable D5.3). The range of organisations will include regional and national public sector organizations, EU and global policy makers, NGO's (regional, national, international), industry, HEI's and local government to ensure that results receive the widest possible coverage, both within the EU and beyond. A key goal of developing interactions with key users is to facilitate bridging the gaps that often exist between water, nature, forest, agriculture and climate authorities. These interactions will also feed into the legacy programme (WP 5, Task 5.4). Training and education provided during the project will ensure that the impacts of activities outlive the duration of the project. In this first iteration of the PEDR we have provided a list of examples (Table 1) based on UK experience which we will use to develop a project-wide register of end-users. Wherever possible we will communicate in local languages rather than in English.

Changes made as part of First Annual Update to PEDR: We are satisfied that the original choice of three main categories of end-user with whom we communicate was correct: scientists, policy makers and practitioners. However, we have modified the policy maker audience to specifically include legislators (e.g. state and regional members of parliaments, MEPs). With this addition we are satisfied that our proposed range of end-user organisations is comprehensive.

Table 1. Register of potential end-users using UKexamples as a template for the project

National and State Go departments	vernment	Department of Environment, Food and Rural Affairs (England)			
		Scottish Government Environment and Forestry Directorate			
		Northern Ireland Department of Agriculture, Environment and Rural Affairs			

Statutory bodies	Environment Agency
	Scottish Environment Protection Agency (SEPA)
	Natural Resources Wales
	Northern Ireland Environment Agency (NIEA)
	NatureScot: Scotland's Nature Agency
	Natural England
	Forestry Commission
	Forestry and Land Scotland
	OFWAT (Office of Water Regulation)
	Health & Safety Executive (regulates pesticides)
	Climate Change Committee
	Crofting Commission (Scotland)
Universities and Research Institutes	Examples include:
(almost all Universities have some	Centre for Ecology and Hydrology
water specialists; in these examples	water@leeds (University of Leeds)
we have noted a few with specialist	Oxford Water Network (OWN) (Oxford University)
water centres)	CREW: Scotland's Centre of Expertise for Waters
Schools and other educators	Schools and educators are a potential audience for
	our work because many provide the first contact that
	children and young people have with ideas that
	perpetuate the Downing Saliency Error
Local Authorities and Council	In the UK all local authorities (there are c.200) are
	stakeholder for ponds because they manage the
	planning system. Other quasi-planning authorities
	National Park Authorities
	Areas of Outstanding Natural Beauty
State and private water companies	England has 34 private water companies
State and private water companies	Welsh Water (Dwr Cymru (public body)
	Scottish Water (public body)
	Northern Ireland Water (public body)
Environmental and engineering	Examples include:
consultants	CIEEM: Chartered Institute of Ecology and
Mainly represented via trade bodies	Environmental Management
	CIWEM: The Chartered Institution of Water and
	Environmental Management
Farmers and landowners	National Farmers Union (England)
	Country Landowner and Business Association
	Scottish Landowners' Federation
Plant protection sector	Private agro-chemical companies
• • • • • • • • • • • • • • • • • • • •	Crop Protection Association
Environmental NGOs	All larger NGOs are potential stakeholders. In UK
	Freshwater Habitats Trust works directly with:

National Trust (c. 5.6 million members)
RSPB (c. 1 million members)
Wildlife Trusts (C. 600,000 members)
There are many other examples in UK including
specialists such as Pesticide Action Network, British
Dragonfly Society, Angling Trusts, etc.

Update on Register of potential end-users: We are satisfied that the main categories of end-users originally proposed is sufficiently comprehensive. The register of end-users has grown substantially during the first year of the project, particularly following contacts initially established following the project's formal launch.

2. Measures to be applied

A **summary of the measures** that will be applied as part of the PEDR is given in Table 2.2a, including estimated duration of project legacy, and indicates measures that will be **implemented during the project** and those that will continue **after it has ended**.

The physical **area of impact** of PONDERFUL is Europe and CELAC countries, although we expect the results to be relevant, and have impact, on freshwater management globally¹. The PEDR identifies the **need** for the project (to increase understanding of a critical component of the water environment), the **problems faced** (the need to overcome the pond 'saliency error', that small waters are considered not important because they are small, a problem affecting all water and land management at present) and how **new knowledge generated** will be made available to users. An example of the type of impact we expect by changing perception of ponds is shown in Box 1.

Box 1. How the UN Framework for Freshwater Ecosystem Management perpetuates an outdated view of ponds and the freshwater environment

The UN high level classification of freshwaters recognises rivers and streams, but, for standing waters, only lakes. The framework, published in 2017, **typifies the challenge provided by the Downing saliency error**²: although there may be up to 3 billion ponds³, they do not figure in international water policy. Documents in Framework for Freshwater Ecosystem Management underpin Sustainable Development Goal 5.

¹Chen, W., He, B., Nover, D., Lu, H., Liu, J., Sun, W., et al., 2019. Farm ponds in southern China: challenges and solutions for conserving a neglected wetland ecosystem. Sci. Total Environ. 659, 1322–1334.

²The 'Downing Saliency error' we have named after comments made by John Downing (Downing 2009) pointing out that 'human mind tends to attribute causes of events or problems to the most obvious aspects of the system, or, in the case of global questions, to those largest in spatial extent'. In freshwater science, people tend to assume the biggest waterbodies are the source of the greatest benefits and the cause of the biggest problems. In practice, the evidence shows that small waters such as ponds are at least as important as bigger waters (if not more so) depending on the specific issue considered. See: Downing, J.A., 2009. Global limnology: Up-scaling aquatic services and processes to planet Earth. Internationale Vereinigung für theoretische und angewandte Limnologie: Verhandlungen, 30(8), pp.1149-1166. ³Biggs, J. et al. 2017 Hydrobiologia 793:3-39.

The project **potential users fall into five broad groups**, with dissemination and exploitation measures designed for each group:

- 1. **Research users:** reached through the project's own international conference and by a structured programme of attendances at regular international symposia.
- 2. **Commercial users**: we will communicate specifically with SMEs and consultancy audiences through industry networks and conferences, including working with traditional engineering and private consulting companies (SO 5.4).
- 3. **Social / environmental users**: reached through networks with NGOs who have active water policy programmes (e.g. IUCN, WWF, Alliance for Freshwater Life, European Environment Bureau), and individual country specific environmental networks.
- **4. Policy makers**: reached through a programme of meetings with policy makers at national levels, and a Brussels-based meeting to interact with EU policy makers. *Added in First Annual Update*: we will specifically explore opportunities to link the climate and freshwater biodiversity crises, following the increased emphasis on freshwater as a priority area for climate adaptation, noted in the IPCC 6th Report.⁴
- 5. **Public**: we will create simple public summaries of key messages for transmission through social media and more broadly through a programme of traditional media (radio, newspapers, TV) to communicate with public audiences.

We will explore **commercialisation of the project outputs** by developing prototypes of 'CLIMA-Ponds' at three key locations in the Danish DEMO site to evaluate the design principles / key variables for selected freshwater species, as well as for climate adaptation and mitigation and other ecosystem services, with monitoring for verification of designs. Stakeholders will contribute to the CLIMA-Pond designs in DEMO site workshops. Co-design with stakeholders will inform potential for transfer to the market. An evaluation and final prototype designs will be promoted through the Technical Handbook, Policy Guidance Document and decision tool and the publication of a trademarked "business model".

End users will be informed about the project results through activities outlined in the **comprehensive communications plan** which will also be created as part of Task 5.1 with

specific channels for communicating with each audience type in the project's website (Task 5.2). We will establish a project Press Office to manage interactions with the public media. We will create a project-wide communications grid for social media and traditional media planning **to ensure the use of appropriate channels of dissemination and interactions**, designed for specific audience types. This will be aligned with relevant national, European and global events (e.g. World Water Day), as well as project specific announcements. In disseminating the results, we aim to reach

⁴See https://www.ipcc.ch/report/ar6/wg1/.

policy, practical and public audiences involved in nature, water, urban, forest, agriculture and climate management.

Update on measures to be applied. Since we wrote the original PEDR, the critical and linked nature of the climate and water crises has become more appreciated. This is exemplified by the Headline Statement B3 in the IPCC 6th report which notes that: "B.3 Continued global warming is projected to further intensify the global water cycle, including its variability, global monsoon precipitation and the severity of wet and dry events" (see

<u>https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Headline_State</u> <u>ments.pdf</u>). For this reason, we will place greater emphasis on demonstrating to user groups the role of small waters in mitigating the impacts of climate change, and especially the linked climate-biodiversity crises.

3. Measures after the project (project legacy)

The project legacy is integral to all parts of the project and will be implemented through the PEDR. We have initially identified those activities which will contribute to post-project legacy (see Table 2.2a), with the expected duration of practical influence on exploitation. As far as possible, post-project exploitation will be designed to continue *without significant additional resources*, with maintenance mainly being undertaken by incorporation in the day-to-day activities of project partners. In Task 5.4 'Work with Small and Medium Enterprises (SMEs) to explore the commercialisation of pond products' we will exploit commercial/consultancy actions to continue post-project creation of climate mitigating ponds. The project website will be maintained post-project for 2 years, and written outputs will be taken into the EPCN and FHT networks for longterm maintenance. We expect written material to have a 'shelf-life' of c10 years or more, with outputs updated on a case by case basis (e.g. Technical Handbook).

Update on post-project measures. We expect that additional post-project measures will be identified during the project as opportunities become available. For example, initial discussions with the Horizon 2020 project 'Building Collaborative Urban Drainage research labs communities' started after the publication of the original PEDR, but are likely to contribute to the post-project legacy for PONDERFUL. Furthermore, one additional exploitation and dissemination approach, the publication of a landmark book on the natural history of ponds by UK PONDERFUL team members, although not specifically funded by PONDERFUL, could make a substantial contribution to the post-project legacy.

Table 2. Summary of outputs and products to be disseminated/exploited by the project and end-users, post-project applications and estimated legacy duration in years



Note that Table 2 will be continuously updated during the project.

Output/Products and duration of legacy	WP	End user groups	Dissemination/ exploitation role
Peer-reviewed papers (c.100) and conference presentations (c.50) on key PONDERFUL findings <i>Legacy</i> : relevant for 20-30 years.	WP1-4	Researchers, policy makers, environmental managers and agencies	Major post-project information resource
Policy Briefing Notes (4) on project implications for freshwater biodiversity, climate change, ecosystem services, multi- functional impact of pond NBS. <i>Legacy:</i> 5 years	WP5	Policy makers at national and EU level, environmental managers and agencies	Post-project exploitation resource
Reports:	WP1-4	Policy makers at regional, national and EU level, environmental managers, businesses and agencies	Post-project
WP1 (4): Policy context, social perceptions, sustainable financing options, socio- economic analysis of pondscapes; <i>Legacy:</i> 5- 10 years			information resource
WP2 (4): Pond biodiversity, ecosystem services, carbon sequestration; <i>Legacy:</i> 5-10 years			
WP3 (6): Social and environmental aspects of pondscape network structure; <i>Legacy:</i> 5- 10 years			
WP4 (2): Effects of pond NBS and ClIMA- Pond trials; Legacy: 5-10 years			
Synthesis report (1) on Final PONDERFUL Framework (Deliverable 1.6)	WP1	Policy makers at national and EU level, environmental managers and agencies	Post-project exploitation resource
Legacy: 5-10 years			
Project website : technical and non- technical resources including videos, DEMO- site summary leaflets, landscape posters, webinars	WP5	Interested EU citizens, local/regional/nation al authorities, journalists, educators, policy makers	Website runs during project, plus 2 years post project
<i>Legacy:</i> leaflets, posters have c.10-year legacy on FHT/ EPCN websites			
Targeted media approaches	WP5	Interested EU citizens,	Communicates
Legacy: public media, especially major news		al authorities,	project results

broadcasters (e.g. BBC) provides c5 years post-project legacy, and will be referred to by other media outlets post-project		journalists, educators, policy makers	during project
Prototype of NBS " CLIMA-Pond " <i>Legacy:</i> 10-20 years, with on-going design refinements	WP4	Individual EU citizens, local and regional authorities, environmental managers and agencies	Post-project exploitation resource
Prototype chambers for GHG continuous measures <i>Legacy:</i> 5 year post-project before refined, superseded	WP2	Researchers, environmental agencies	Practical tool during and after project
Open source modelling framework enabling upscaling of observed empirical relationships (from WP2 and WP4) to pondscape networks	WP3	Researchers, environmental agencies, consultants	Post-project exploitation resource
Legacy: 5-10 years post project			
Workshops to identify stakeholders' needs and barriers to implementation of NBS, to gather data and information on social perceptions and policy context, to co- develop baseline and future scenarios, to discuss financing implementation possibilities, and to co-develop information resource set	WP1, WP3, WP4	Local stakeholders, local and regional authorities, environmental managers and agencies	During project, generates practitioner network
Diverse set of open access databases including policy, societal context, financing options valuation of ponds and pondscapes, empirical data on biodiversity, environmental conditions, ecological status, carbon sequestration, GHG emission, ecosystem services of ponds across Europe; targeted experiments, case studies, pondscape maps, spatially-explicit land use and climate series data. Note that some data types, such as recordings and transcriptions of personal opinions, will only be available in summary forms to maintain confidentiality. <i>Legacy:</i> 10-20 year post-project.	WP1-4	Researchers, consultants, environmental managers and agencies	Major post-project exploitation resource
DEMO sites to demonstrate the	WP4	Local and regional	Major post-project

effectiveness of different innovative pondscape NBS <i>Legacy:</i> typically up to 30 years; Pinkhill Meadow (created 1990, potential 60 year legacy)		authorities, scientists, environmental managers and agencies	dissemination resource
Technical Handbook on pondscape NBS. <i>Legacy:</i> 10+ year for 1st Draft, lifetime of Handbook, with revisions, up to 30 years	WP4	Site managers, private companies, local and regional authorities	Influential exploitation resource
Policy Guidance Document supporting stakeholders in selection and evaluation of pondscape NBS <i>Legacy:</i> 5-10 years, then updated by EPCN, FHT, others	WP4	Site managers, private companies, local and regional authorities	Post-project exploitation resource
Open source interactive multi-criteria decision tool to promote pondscape NBS <i>Legacy:</i> c.10 years, then updated by EPCN, FHT or other users	WP4	Site managers, local and regional authorities, researchers, environmental managers and agencies	Post-project exploitation resource
Clustering activities with other EU-funded research projects and IPBES-IPCC Assessments & EU Policy Initiatives. Legacy: c.5 years as new relationships are established, potentially with joint publication of papers, development of joint policy documents or development of new research proposals.	WP5	Researchers, policy makers, environmental managers and agencies	Post-project exploitation resource
Popularisation of understanding of ponds . In spring 2022, the semi-technical book 'Ponds, Pools and Puddles' will be published in the UK New Naturalist series, a long- established natural history publication brand. See link to publishers website: https://harpercollins.co.uk/products/ponds- pools-and-puddles-collins-new-naturalist- library-jeremy-biggspenny- williams?variant=39469940572238 Although not funded by PONDERFUL, the book has been written by members of the FHT team in the UK.	WP5	All involved in the conservation and management of ponds.	Post-project exploitation resource

<i>Legacy</i> : 20-30 years. We will explore ways of		
making the text of the book 'Ponds, Pools		
and Puddles' more widely available (e.g.		
translation, Europe-wide advertising, re-		
packaging of key parts of the book in		
PONDERFUL-specific formats.		
·		

Part 2: Review and Update of Communications Plan

1. Introduction

This report provides the first annual review and update of the PONDERFUL Communications Plan (Deliverable 5.2) which sets out the communication activities to ensure project results are available to our key audiences, particularly policymakers, as well as showing how the outcomes are relevant to practitioners, businesses and citizens' everyday lives, to get the maximum value from our results.

In this first annual update we have reviewed the main content of the Communications Plan. Additions or changes to the Communications Plan are highlighted in blue text for clarity.

Overall, the Communications Plan is intended to ensure that the project is widely known to relevant audiences **at the right levels** (i.e. project participant states, more widely in Europe and internationally), to maximise the exploitation and dissemination potential, and help create the paradigm shift in recognition of the importance of ponds and pondscapes needed to maximise the societal benefits they provide. The communication plan also creates the base for long-term post-project communication of the project outputs.

The **overall objectives** of the Communications Plan are to:

- Ensure that researchers in various key disciplines are aware of the project results
- Make policymakers in water, nature conservation, forest, agriculture and climate sectors aware of the importance of small waters and the practical implications of the project results, building on recognition of ponds in IPBES Europe and Central Asia Regional Assessment
- Provide effective practical tools for practitioners, who need confidence in methods rather than technical details
- Create a consistent series of stories, designed for specific audiences, about the project emphasising the special role of small waters.

The overall objectives of the Communications Plan are satisfactory and have not required significant changes.

2. Objectives

To **achieve our objectives** we will combine a mixture of **intermediate communication goals** which we can be sure are relatively easily achieved, combined with **high impact**, **more ambitious, final communication goals**. Our previous experience indicates that generating changes in EU environment policy is challenging and often long-term but may be helped by the current high profile of the climate/biodiversity crisis and the recent recognition by IPBES that ponds harbour a significant proportion of aquatic biodiversity, are under increasing pressure and are historically neglected⁵.

In this situation, it is possible that the project's promotion of a **high impact paradigm shift** to fully incorporate small waters in environmental policies may now be more achievable. For example, the UN Framework for Freshwater Ecosystem Management currently perpetuates long out-of-date views of ponds by using a high level classification of freshwaters that recognises rivers and streams, but, for standing waters, only lakes. This Framework, published in 2017, underpins UN Sustainable Development Goal 6 on water and typifies the 'Downing saliency error': although there are somewhere between 160 million and 3 billion ponds globally, they do not figure in international water policy.

We will define within the Communications Grid (which will be a living document regularly updated) deadline dates for key communication activities and a central driver will be to ensure that information is made available to annual/biannual Conventions of Parties (COPs) for IPCC and IPBES. At the highest levels the key communication goals will be to encourage policy makers to:

- Incorporate ponds effectively in freshwater policy and legislative programmes which, as noted by IPBES, are currently almost entirely focused on rivers and large lakes
- Incorporate pond habitat creation goals in the UN Decade of Ecosystem Restoration, which currently has very limited freshwater biodiversity specific objectives
- Incorporate ponds and other small waters, freshwater biodiversity and ES goals in the CBD plans (and future EU Water Framework Directive revisions) – currently these are mostly focused on large waters, reflecting the traditional 'saliency error' paradigm.

The Communications Plan is a central part of WP5, and is specifically implemented in Tasks 5.1 and 5.3 (see Appendix 1). It is led by FHT which has good previous experience of media engagement including regular radio and TV appearances, writing for national media and the running of an organisational communications strategy. Graphic, web and other design material will be professionally designed. We are creating an in-house

⁵IPBES (2018): The IPBES regional assessment report on biodiversity and ecosystem services for Europe and Central Asia. Rounsevell, M., Fischer, M., Torre-Marin Rando, A. and Mader, A. (eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 892 pages; ²Gozlan et al. (2019). Inland Waters, 9, 78–94

communications guidance manual for participants (which we will complete by Month 6) and allocate resources for training key members of staff in media techniques, complementing their existing experience. Larger university participants also have inhouse media teams who we will build into the communications plan, and we will also cooperate as far as possible with the media teams of the larger public bodies and NGOs (e.g. Natural England in the UK, RAMSAR Bureau) who are supporting the project. Our virtual Press Office will comprise a central list of media contacts – normally one person for each partner who is either member of the team or a member of the organisation's official media team.

3. Audience

Our **audience is divided into five main categories** (see WP5 details), and **goes beyond the research community**, with communications designed to meet the needs of each of these groups. We will also **develop a register of critical 'super-influencers'**, such as the Head of the EU Water Policy Unit and the EU Environment Commissioner.

We will develop a small number of key **messages** to convert into stories about the project. In the first half of the project these are likely to consist of:

- Why the 'saliency error' on small waters matters, and how latest data support this hypothesis
- Ponds are lynch-pin habitats for freshwater biodiversity: European and world-wide examples
- How small waters interact with the climate: a powerful force for good or a problem in the making?

In the second half of the project, we will be adding to these messages the key outputs of project results which could include (though this obviously depends completely on project outputs):

- Ponds: a European refuge for freshwater wildlife
- Refining global climate models with information on small waters
- Multiple benefits from small waters are cheap, easily achieved and can reliably be delivered (unlike much of current water management)

We will arrange our communications to combine a mixture of **one-way and two-way exchanges** to obtain maximum awareness of the project, develop longevity and generate post-project funding and support for actions. All project participants will be involved in project communication through a strategic grid of daily, weekly, monthly and annual programmes of communications activity co-ordinated by FHT and working in collaboration with EPCN. We will seek monthly updates on likely news items from each participant, and make suggestions of the main stories they should be promoting locally.

We will prepare a strategy for key staff to represent the project in each member state when we generate high profile media (e.g. publication in a high level journal, observations which confirm the substantial role of small waters in influencing climate gases, where some evidence indicates impacts equal to forests or peatlands). We will use standard feedback survey forms extensively developed in previous projects to evaluate the success of communication activities. We will run both **internal communication strategies** – which are mainly concerned with ensuring that participants are aware of all the ongoing activities and also help to maintain overall project coherence - and **external communications strategies**.

The original identification of audiences remains unchanged and is suitable for the communication of PONDERFUL results. Key messages also remain satisfactory with increasing evidence of the value of small waters for freshwater biodiversity, and recognition in the scientific literature that small waters have been undervalued⁶.

Appendix 1. Implementation of the Communications Plan: text from WP5 summarising the approach to be taken.

Objectives

WP5 is coordinating the dissemination, exploitation and communication of PONDERFUL results and outputs, enabling **ponds and pondscapes to be used to provide climate change adaptation and mitigation, biodiversity conservation and other ecosystem services**. WP5 will ensure that the information, tools and practices created by PONDERFUL become widely known to relevant user groups by: (a) finalising and implementing the Plan for the Exploitation and Dissemination of Results (PEDR) and the Communication Plan, (b) developing the project website and data management system, (c) running a comprehensive programme of interpersonal, written and visual communication, and (d) co-ordinating the project's data management and long-term legacy.

The Specific Objectives (SO) of WP5 are:

SO 5.1. To complete the development of the Plan for the Exploitation and Dissemination of Results (PEDR), ensuring that it is fully developed, regularly updated and implemented during the project and create and implement a comprehensive Communication Plan identifying communication tools and managing a timetable of activities to reach key audiences. The two plans will maximise the substantial innovation potential that the project can deliver and make the results widely known in Europe and beyond.

⁶van Rees, C.B.et al, 2021. Safeguarding freshwater life beyond 2020: Recommendations for the new global biodiversity framework from the European experience. Conservation Letters, 14(1), p.e12771. These authors noted the "**the bias in research**, **management**, **and policy principally focused on rivers and lakes**, **largely excluding other freshwater habitats**".

SO 5.2. To establish, develop and manage the project's website, data management system and other web-based resources to provide an easily accessible central communications hub that will be the repository of the project's information resources. The website will also form the basis of the project legacy with data and outputs linked to the EPCN website to facilitate long-term dissemination and exploitation.

SO 5.3. To schedule and coordinate interactions with existing international scientific, policy and practical networks and disseminate project results by working with multiple audiences to embed PONDERFUL results in the work of nature, water, urban, forest, agriculture and climate policy managers. To assist this process we will produce policy briefings, a Technical Handbook and Guidance Document and explore the commercialisation of project outputs with participating SMEs.

SO 5.4. To ensure access to the large quantities of original data generated by **PONDERFUL** we will produce and implement a long-term **Data Management Plan** to ensure that our data are findable, accessible, interoperable and reusable (FAIR).

Task 5.1. Develop, regularly update and implement the Plan for the Exploitation and Dissemination of Results (PEDR) and develop the project's comprehensive Communication Plan. Lead participant: FHT; participants: KUL, HES-SO, ECOLOGIC, UCL, CIIMAR, UdelaR, RANDBEE.

In Task 5.1 we will finalise the Plan for the Exploitation and Dissemination of Results (PEDR), which will be completed within one month of the projects' start date and evaluated at the consortium Kick-Off Meeting and create and regularly update a comprehensive Communication Plan for strategically communicating project results to our key audiences (policymakers, practitioners, businesses, public), with a **daily**, weekly, monthly and annual communication grid, using multiple social and traditional media channels. Messages will be adapted to relevant national, European and global timetables (e.g. Fête des Mares in France, World Water Day). The overall objective of the Communications Plan is to: (i) ensure that project results are known to scientists in key disciplines and to policymakers in water, nature, forest, agriculture and climate management and (ii) to provide practitioners with usable practical advice and public audiences with simple information, emphasising the special role of ponds and pondscapes in land and water management. Our goal is to see pond- and pondscaperelated policy objectives incorporated into relevant global, EU, national and regional policies (e.g. future EU Water Framework Directive revisions, UN Decade of Ecosystem Restoration programmes and Convention on Biological Diversity plans). The communication goals are important because most policy still focuses on large water bodies, whereas ponds, due to their high number, sensitivity to anthropogenic impact and ease of management, provide strong levers for climate change adaptation and mitigation, biodiversity conservation and enhanced delivery of ecosystem services.

The communication programme is led by FHT who will create an in-house communication guide for the project team, train key staff in media techniques, and provide general media training at Annual Meetings.

Task 5.2. Develop, manage and maintain the project website, web-based resources, data management system and long-term information repository.

Lead participants: CIIMAR; participants: KUL, HES-SO, ECOLOGIC, UCL, CIIMAR, UU, FHT RANDBEE.

The PONDERFUL website will function as the central dissemination, information and communications hub for the project with standard pages (news, events, about, team, press, etc.), an online atlas, an educational component and multilingual web-based materials (i.e. webinars, E-Newsletters, short animated films). It will host PONDERFUL generated datasets and metadata and web-based resources created in WP4 (Technical Handbook, Policy Guidance, multi-criteria decision tool). The website will be developed by RANDBEE, who have substantial experience in website production for EU-funded projects, with web-based resources produced by CIIMAR, which has coordinated several national and international science literacy projects, and other project partners. Project branding and styling, developed within the first three months, will establish the PONDERFUL visual identity (logo, fonts, colours, visual identity) with templates and guidelines for use by all participants, and will be consistent with participants existing branding to help post-project legacy. We will create social media channels in line with the visual identity (e.g. Twitter, Facebook), produce two animation videos, a peer-reviewed video on JoVe on protocols for making ponds and broadcast four Technical Webinars about pond importance and management.

The Data Management Plan will be created by Month 6 of the project and updated annually (Month 18, 30, 42). The DMP will set out mechanisms for managing the project's data and metadata management practices, while the AQUACROSS Information Platform (IP) will be the operational software tool for implementing these management practices. The data generated by PONDERFUL will be made findable via a centralised metadata database embedded in the AQUACROSS Information Platform (IP), linked to the PONDERFUL website. For long-term data archiving and preservation, all the publications and research data will be uploaded in an official repository and they will be carefully managed following the best research management practices coming from Zenodo and OpenAIRE. The metadata will be uploaded and maintained on the platform provided by the existing AQUACROSS IP. In the case of public data not directly accessible through online data portals, the sources of the data and respective contact points will be provided, along with the metadata uploaded to the IP.

The data and metadata will be managed by a working group drawn from all Work Package teams which will be tasked with 'Ensuring dataset interrelationships and consistency'. The DMP will comprise the protocols for the collection of new data as part of the different project work packages and will guide all subsequent data management activity in accordance to the H2020 Open Research Data Pilot and the FAIR principle (see also section 2.2 for details on data management). Short-term temporary storage of data during the project will be done centrally on a cloud data storage tool that is automatically backed-up at regular time intervals and shared among all project partners. To ensure the project legacy, website materials will be maintained long-term by the two NGOs associated with the project (FHT and EPCN), the transition being



managed during Year 4. We will also upload data to ZENODO for further enhancing the long-term legacy of the data.

Task 5.3. Implement the PEDR and Communication Plan and interact with existing scientific, policy and practical networks. *Lead participant: FHT; participants: all project participants will contribute.*

Our communication strategy will be differentiated according to audience types and networks and balances **two-way person-to-person** communication with **one-way reports, documents and media**. The PEDR and Communication Plan will be **reviewed annually**. Task 5.3 will comprise two main activities to support effective exploitation, dissemination and communication:

(1) A major communication campaign will be developed to promote PONDERFUL with a daily, weekly, monthly and annual social and traditional media programme, promoting the project to relevant audiences, underpinned by a database of stakeholders and end-users. We will also develop a database of national pond contact points to ensure regional and national awareness of project results and establish a coordinating PONDERFUL Press Office, identifying national partner Communication Officers. We will provide regular project updates in a twice yearly Enewsletter, "PONDERFUL News and Freshwater Reports" including reports and updates on relevant freshwater projects worldwide to facilitate the sharing of information with rapid communication ensured through the PONDERFUL Twitter account. To help train the next generation of young scientists, in clustering work with AQUACROSS, we will run webinars on PONDERFUL topics from the end of Year 1, probably at quarterly intervals.

(2) Planned **communications with scientific, policy and practical networks for the project duration**:

Scientific communication: Following a planned schedule, all project participants will make at least one annual scientific presentation at national and international conferences of relevant scientific societies (e.g. Symposium for European Freshwater Sciences, World Conference on Ecological Restoration) with the PONDERFUL conference (Year 4), in Turkey or Spain, providing additional awareness raising. Peer-reviewed articles, guidelines, tools and databases developed in WP1-WP4 will be open-access with publications and releases announced through TV, radio, newspapers, social media and professional networks.

Policymaker communication: All participants will make at least one presentation annually to policy makers focusing on the practical benefits of small waters. We will build on earlier discussions on small waters with the EU, and will include meetings with European networks (e.g. **Network of European Nature Conservation Agencies** (ENCA) and three **European Topic Centres** on Biological Diversity, Inland, Coastal and Marine Waters, and Climate Change Impacts, Vulnerability and Adaptation), the EU Water and Habitats directorates, the EU climate directorate, and NGOs with international water programmes (e.g. WWF, IUCN). **Policy briefings** (four documents) will provide policy and business leaders with summaries of project results covering freshwater biodiversity, benefits of NBS, the role of ponds in climate change and new Deliverable D5.9 - First annual review and update of PEDR and Comms Plan

business opportunities (especially CLIMA-Ponds), available in 12 languages for wide accessibility.

Ponderful

Practitioner communication: In each of the participant states we will identify networks of regional and national practitioners which the project needs to interact with. The objective will be to make potential users aware of discussions about Case Study sites (WP2), DEMO sites (WP4), the Technical Handbook, the Policy Guidance Document and applications for practitioners. We will also create a small series of 6-8 **information posters**, modelled on posters produced by FHT for the UK, to convey the main findings of the project covering each main climate region and farmed, semi-natural and urban environments (Figure 3.1/WP5).



Figure 3.1/WP5. Pictorial guides to UK pondscapes and their management. The two examples (grassland, left; forest, right) are designed to convey messages about network density and location of clean water ponds

In addition to the **clustering activities** organised by specific WPs, PONDERFUL will organise webinars and two-way invitations to project meetings with **SMIRES** (http://www.smires.eu/), a COST Action on intermittent rivers and ephemeral streams, with potential synergies in the management of freshwater ecosystems under a climate change perspective. We have also reserved money for clustering with projects submitted under the same Topic (e.g. **DRYvER:** Securing biodiversity, functional integrity and ecosystem services in drying river networks). To support the **project legacy** we will develop post-project relationships with national and pan-European activities that continue after the project (e.g. River Basin Management Plans). **Implementation of the Communication Plan** will be led by FHT with a 0.4 FTE international coordinator with time allocated to regional lead participants for a **daily**, **weekly, monthly and annual communication programme**, adapted to regional, national, European and global timetables

Task 5.4. Work with Small and Medium Enterprises (SMEs) to explore the commercialisation of pond products: CLIMA-Ponds. Lead participant: AMPHI; participants: HES-SO, FHT.

We will create commercial demand for the project's results by developing SME awareness, tools and know-how to provide alternatives to 'business-as-usual' approaches in land and water management. This will create foundations to increase the market-based opportunities to return ponds to European landscapes in sufficient quantity and integrity to influence CC mitigation and adaptation, biodiversity targets, and societal resilience of ecosystem services. We will develop a business model for market application of project results, incorporating stakeholder inputs from WP1, DEMO sites data and NBS prototypes from WP4, and test commercial potential through a business model building exercise, including avaluating the use of CLIMA-Ponds deployed in large numbers in public and private spaces (e.g. golf courses, parks, gardens, agricultural settings). The business model will include:

Ponderful

Analysis of the products, including their unique value for customers, positioning and price level. The possible business should target selling specific values/benefits of ecosystem services such as carbon sequestration, water cycle rehabilitation and habitat or key species (e.g. amphibians) protection.

Identification of the target sectors and actors for the commercial uses, such as: clients and/or purchasers in tender procedures (e.g. local governments, managers of protected landscapes, private landowners) and tender performers (SME/practitioners such as engineers, developers, landscape architects), involved in managing, use and transformation of landscapes across the full range of natural to agricultural and urban settings.

Identification of existing and future barriers to the commercial use of the project results (e.g. beliefs, recognised investments pathways, resistance to change) and drivers to adoption (e.g. water, biodiversity and/or emerging climate regulations, bottom-up pressure from society and NGOs).

Identification of the optimal business organisation, including key activities, required and available resources and strategic partnerships, and *possible channels and strategies to reach the market.*

PONDERFUL will also **develop standards for commercialisation and a 'best practice' design code.** Based on the analysis of the monitoring results of the project, we will set standards for restoration and creation of ponds in the full range of landscape settings (from natural to urban), both for nature conservation and restoration as well as for mitigation purposes. **Certification criteria** will be developed to allow for better design and optimization of the product in the future with a 'best practice' code of design/construction to deliver specific product values/benefits (e.g. carbon sequestration, biodiversity/species protection). AMPHI will develop 'standardised', 'certified' or 'labelled' ponds, following specific requirements (design, construction) to deliver specific benefits based on ecosystem services and biodiversity conservation.

Task 5.5. Clustering activities. *Lead participant: FHT; participants: AU, CIIMAR, ECOLOGIC, RANDBEE, UU, UVic*.

Clustering activities to create synergies with other projects funded under the same topic (e.g. DRYvER) or outside the topic (e.g. AQUACOSM-PLUS, CLIM-SALTLAKES), mentioned elsewhere of the proposal, will be coordinated within this task. The project will also collaborate to build up on existing knowledge and create synergies with other Nature Based Solutions (NBS) projects which are working together under different Task Forces (e.g. TF1: EU NBS Knowledge Repository; TF2: NBS Impact Assessment



Framework; TF3 : Business and Governance; TF4: Communication and Exploitation; TF NBS for hydro-meteorological risk; TF EU-China NBS Cooperation).



Appendix 2. Table of Deliverables

D5.1. Report: Plan for the Exploitation and Dissemination of Results [M2].

D5.2. Report: Complete comprehensive communication plan [M2].

D5.3. Initial database of stakeholders and end-users to underpin identification of main audiences, facilitate stakeholder engagement and communication network; continuously updated during project [M2].

D5.4. First version of daily/weekly/monthly/annual communications grid, reviewed monthly/annually (M4).

D5.5. Initial database of national pond contact points to be continuously updated during project [M4]

D5.6. Report: Complete project branding guidelines and style artwork and deliver outputs to participants [M6].

D5.7. Report: Data Management Plan to determine the strategy by which data generated by the project will be made open for maximising their re-use [M6].

D5.8. Report: Programme for interactions with scientific networks, policy networks and practical networks to communicate and disseminate project outputs, refined at 6 monthly, formal annual update [M6].

D5.9. First annual review and update of PEDR and Communications Plan [M12]

D5.10. Publish newsletters (PONDERFUL News and Freshwater Report) with updates of first year [M12]

D5.11. Second annual review and update of PEDR and Communication Plans [M24].

D5.12. Publish newsletters (PONDERFUL News and Freshwater Report) with updates of the second year [M24].

D5.13. Updated data management plan [M30].

D5.14. Content created for Technical Webinars about pond importance and management [M30].

D5.15. Produce first animation video about the importance of ponds [M36].

D5.16. Report: first plan for SME commercialisation of CLIMA-Ponds [M36].

D5.17. Third annual review and update of PEDR and Communication Plans [M36].

D5.18. Publish newsletters (PONDERFUL News and Freshwater Report) with updates

D5.19. Produce second animation video about the importance of ponds [M40].

D5.20. Report: Development of standards for commercialisation and 'best practice' design code [M40].

D5.21. Publish 4-6 information posters describing pond landscapes and their management [M46].

D5.22. Policy Briefing notes summarising main project results for policy makers and practitioners [M46].

D5.23. Publish newsletters (PONDERFUL News and Freshwater Report) of the last project year

Appendix 3. Our approach to knowledge management and protection.

A central objective of PONDERFUL is to create a well-managed research data resource for efficient use in the project and effective reuse as part of the project legacy. We will follow the H2020 Open Research Data Pilot requirements to facilitate access and reuse of research data generated within PONDERFUL. Specifically we will:

- Develop (and keep up-to-date) a Data Management Plan (DMP).
- Deposit our data in named research data repositories.
- Ensure third parties can freely access, mine, exploit, reproduce and disseminate our data with the AQUACROSS Information Platform which fully complies with the Open Research Data Pilot
- Provide related information and identify the tools needed to use the raw data to validate our research.

A detailed Data Management Plan (DMP) will be developed at Month 6 (D5.7) of the project (WP 5) and updated annually (Month 18, 30, 42) with data generated from the last update. The DMP will ensure that the research data is Findable, Accessible, Interoperable and Reusable (FAIR). The DMP will set out mechanisms for managing the project's data and metadata management practices.

PONDERFUL will generate large and important datasets on all aspects of ponds and pondscapes, covering policy, societal context, financing (WP1), biodiversity, environmental conditions, ecological status, carbon sequestration, GHG emission and other ES, targeted experiments, case studies, pollination services, and colonization newly ponds (WP2), maps of pondscapes, spatially-explicit time series data on land use and climate dynamics, priority maps for intervention, mapping and assessment land use and CC impacts, predictive modelling frameworks (WP3), and information on best practices for NBS (WP4). We will also combine a large number of existing datasets on biodiversity from several thousand European ponds into a well-integrated Pan-European database. The DMP will deal with all these different kinds of data, developing and implementing a management vision that conforms to the FAIR principle in accordance to the H2020 Open Research Data Pilot.

The AQUACROSS Information Platform (IP) will be the operational software tool for implementing the management practices of the data Data generated by PONDERFUL will be made findable via a centralised metadata database embedded in the PONDERFUL section of the AQUACROSS Information Platform (IP). The data generated by PONDERFUL will be made findable via a centralised metadata database embedded in the AQUACROSS Information Platform (IP), linked to the PONDERFUL website. The AQUACROSS IP takes advantage of the latest developments and interoperability standards for harvesting and collecting relevant data and metadata files from other European reference data portals. The associated data will be uploaded on decentralised repositories that each participant can choose according to their needs (e.g. Freshwater

Biodiversity platform, GBIF, repositories linked to peer-reviewed papers (e.g. DRYAD), WaterNet), linked to the PONDERFUL website via the AQUACROSS Information Platform so that all data will be accessible through the PONDERFUL website. Project data will be documented to relevant metadata standards and compliant with the INSPIRE/Open Geospatial Consortium (OGC) compliant. For spatial datasets the PONDERFUL discovery metadata profile will adopt the INSPIRE Directive metadata model using the ISO 19115/19139 standards. For non-spatial datasets, the Ecological Metadata Language will be adopted. Data will be made openly available under an Open Data License (Creative Commons CC Zero License or Creative Common Attribution License-CC-BY v4.0), unless there are restrictions imposed by third parties, immediately after acceptance of the associated peer-reviewed scientific research paper. For long-term data archiving and preservation, all the publications and research data will be uploaded in an official repository and they will be carefully managed following the best research management practices coming from Zenodo and OpenAIRE. The metadata will be uploaded and maintained on the platform provided by the existing AQUACROSS IP. In the case of public data not directly accessible through online data portals, the sources of the data and respective contact points will be provided, along with the metadata uploaded to the IP.The data and metadata will be managed by a working group drawn from all Work Package teams which will be tasked with 'Ensuring dataset interrelationships and consistency'.

There are three aspects of data management that will need special attention in the DMP of PONDERFUL: (1) privacy of stakeholder related information; (2) geo-referencing of data on rare or threatened species; (3) data from external collaborators. Concerning privacy, PONDERFUL will comply with the GDPR EU legislation. Special care will be taken over personal identification in WP1 and WP 5 stakeholder information (e.g. data collected from surveys, interviews, workshop participation, etc). The templates (consent form for interviews, registration document for workshops, and text for the survey question) will be located in the intranet of our website. We will not gather any sensitive data or conduct any type of research on humans that would require ethical approvals. All participants will be assured of anonymity and all data and results of analysis will be treated in a confidential way. We will ensure anonymity of the data collected by coding the respondents, recordings and transcripts, and not linking any personal data to respondents during data gathering, archiving, analysis and results presentation.

The results of the study will be only presented in an aggregated form, so it will not be possible to identify information/data provided by particular participant. To avoid risk to the rights and freedoms, we will not use any data processing like tracking, surveillance, audio and video, geolocation, tracking, or personalization on written support. While it is important that most of our data will be geo-referenced, PONDERFUL will develop procedures on geo-referencing data that could contain sensitive information. This might involve establishing buffer zones around (specific) coordinates, or limiting access to some of the more detailed data (e.g. species lists of threatened amphibians or large branchiopods). The DMP will comprise the protocols for the collection of new data as part of the different project work packages and will guide all subsequent data management activity in accordance to the H2020 Open Research Data Pilot and the FAIR principle.



Short-term temporary storage of data during the project will be done centrally on a cloud data storage tool that is automatically backed-up at regular time intervals and shared among all project partners. The PONDERFUL consortium aims to follow the same FAIR approach for the existing data that will be used within the project, especially in the development of the pan-European database on pond biodiversity. However, many of these data sets are owned by external researchers, organizations or institutes, and we thus rely on their willingness and permission to make these data openly available. This will be part of negotiations with the different partners and, if restrictions apply, we aim to make at least the metadata publicly available so that data owners can be approached for permission to use data.

Peer-reviewed scientific research articles (as well as the modelling framework from WP3), will be made open access via open access publishing ('gold' open access) or selfarchiving ('green' open access). . To ensure the project legacy, website materials will be maintained long-term by the two NGOs associated with the project (FHT and EPCN). We will also upload data to ZENODO for further enhancing the long-term legacy of the data. Irrespective of the chosen access route, the author will deposit a machine-readable electronic copy of the published article or the final peer-reviewed manuscript in an open source online repository (such as www.zenodo.org) to ensure long term preservation. A journal/publisher specific embargo period (of up to six months) might apply when choosing for publishing under 'green' open access. Costs associated with making the data FAIR and with open-access publishing will be covered under PONDERFUL.





Coordinator: Prof. Sandra Brucet, University of Vic – Central University of Catalonia & ICREA Project Manager: Dr. Diana van Gent, University of Vic – Central University of Catalonia Contact: diana.vangent@uvic.cat Duration: 1 December 2020 to 1 December 2024 Website: www.ponderful.eu Facebook: /Ponderful-331847228188664 Twitter: @ponds4climate



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