

TICINO LANDSCAPE RESTORATION PLAN 2021-2031

ABSTRACT

February 2021

Compiled and edited by: Martina Spada, Serena Arduino (Istituto Oikos)

Contributors: Angela Faliero (East Sesia Irrigation Association); Massimiliano Foglia, Sandro Peduzzi, Andrea Salvetti (Canton of Ticino, Land Department); Bruno Boz, Andrea Goltara, Mauro Luchelli, Marco Monaci (CIRF); Sibiana Oneto, Federico Pianezza (Valli del Verbano Mountain Community); Alessandra Frongia, Chiara Pisoni (East Ticino Villoresi Land Reclamation Authority); Paolo Eusebio Bergò, Daniele Seglie (Eleade), Marco Romani (National Rice Authority); Irene Bianchi, Stefano Brenna, Gemma Chiaffarelli, Dario Kian, Elena Tondini (ERSAF); Giulia Amato, Riccardo Da Re, Diego Gallo, Alessandro Leonardi, Fabrizio Malaggi (ETIFOR | Valuing Nature); Roberto Lardelli (Ficedula-BirdLife Switzerland); Nicola Patocchi (Bolle di Magadino Foundation); Cesare Puzzi, Stefania Trasforini (GRAIA); Chiara Farioli, Barbara Raimondi, Alessandro Uggeri (Idrogea Servizi); Alessandra Gagliardi, Rossella Rossi, Francesca Santapaola, Filippo Zibordi (Istituto Oikos); Claudio Celada, Giorgia Gaibani, Federica Luoni (LIPU-BirdLife Italy); Christian Elevati (Mapping Change); Giancarlo Sturloni (NatCom); Monica Brenga, Marco Pistocchini (Campo dei Fiori Regional Park); Michele Bove, Fulvio Caronni, Silvia Nicola, Valentina Parco (Ticino Valley Regional Park, Lombardy); Alma Sartoris (Piano di Magadino Park); Paola Trovò, Edoardo Villa (Ticino and Lake Maggiore Regional Park); Paolo Losio (Province of Pavia); Sara Barbieri, Claudia Longhi (Province of Varese); Mila Campanini (Lombardy Region, DG Land and Disaster Relief); Elena Anselmetti, Floriana Clemente, Anna Lanfranco (Piedmont Region, DG Environment, Energy and Land–Water Protection Sector); Monica Perroni, Francesca Trotti (Ticino Val Grande Verbano MAB Reserve); Francesco Bisi, Giacomo Cremonesi, Adriano Martinoli (State University of Insubria); Claudio Gandolfi, Paolo Tremolada, Giorgio Vacchiano (State University of Milan); Anna Corli, Simone Orsenigo, Graziano Rossi (State University of Pavia); Chiara Bertora, Daniel Said Pullicino (State University of Turin)

With the support of: Technicians participating in the R.T.P. "Community of Practice for GESTIRE 2020" within the LIFE IP project "Nature Integrated Management to 2020" - GESTIRE 2020 - LIFE14 IPE IT 018 promoted by the Lombardy Region.

This Abstract

Spada M., Arduino S., 2021. Abstract, Ticino Landscape Restoration Plan 2021-2031

The full publication (in Italian) should be cited as:

Spada M., Arduino S. (a cura di), 2021. Piano di riqualificazione del corridoio ecologico del fiume Ticino. Realizzato nell'ambito del Project Planning Grant di Endangered Landscape Programme.

Photographs

Cover: © Archivio Parco Ticino Lombardo Back cover: © Donato Tornotti

Editor, English Abstract: Catherine Roberts

February 2021



The Upper Ticino River enters Lake Maggiore, forming the only natural river mouth in a lake in the southern Alps and one of only a few in Europe. This area, called *Bolle di Magadino*, is a RAMSAR site and a Swiss Natural Reserve. ©Fondazione Bolle Magadino

Ticino Landscape Restoration Plan 2021-2031 Abstract

Imagine that at the centre of Europe, between the Alps and the Apennines, there is a vital heartland – a mosaic landscape of more than 1 million hectares that can be seen from space in satellite photos as a green tongue crossing the Po Valley. Airline passengers flying over the area are stunned when they see it from above, this outstanding green oasis, its beauty evident even from a distance. This is the Landscape of the Ticino River Basin. Around it are towns and highways, seamlessly lining the landscape in one of the most densely inhabited and productive areas in Europe. The importance of the Ticino to the Po basin, which occupies almost all of central-northern Italy, is fundamental and its waters help to support all the irrigation of the plains connected to the Po.

The Ticino River is also essential as the only existing ecological corridor connecting the Alps and the Apennines, running across the highly populated Po Plain. Despite human pressure it includes valuable habitats and biodiversity – wetlands, isles, oxbow lakes and dense riparian forests. Nevertheless, intensive agriculture and industrialisation have degraded native habitats over time. Since 2019, the Endangered Landscapes Programme has funded the preparatory phase for a coordinated transnational effort to restore the Ticino River Landscape shared by Italy and Switzerland which is creating a new vision for the Landscape. This vision, characterised as 'one river – many systems – one landscape', is being realised through development of a transboundary Restoration Plan and Landscape Restoration Initiative that seek to restore the Landscape and its natural functionality.

One river – many systems – one landscape

The Ticino Restoration Plan is the result of a bottom-up participatory process involving partners and stakeholders from Italy and Switzerland. It has brought together public administrations from various levels of government, NGOs, research institutions, land and water managers.

The Plan provides the unifying vision and process for the coordination of activities on a range of themes. The resulting framework is flexible, able to be adapted in response to changing situations in the field and in governance.

The Ticino Landscape Restoration Initiative is a technical coordination structure. Its extensive governance framework will generate a wealth of synergies and connections. It also welcomes new parties who wish to join the effort to restore the Ticino Landscape.

The Initiative addresses the complexity of a transnational river and will interact with similar initiatives, especially in the Alps, to benefit from a growing community of practice. It will also contribute to the debate and practices on landscape restoration under the UN Decade on Ecosystem Restoration 2021-2030.

The Ticino Landscape has the potential to revert to a fully functional ecological corridor in balance with, and supporting, human well-being and a thriving economy. The Ticino Restoration Plan and the Ticino Landscape Restoration Initiative are tools for the integrated and coordinated restoration of the Ticino Landscape as well as promoting learning and sharing of best practices beyond the Ticino Landscape.

The vision of this enterprise, one river – many systems – one landscape, is to restore the Landscape and its natural functionality, encourage sustainable livelihoods, restore extinct and threatened species, enhance ecosystem services and foster resilience to climate change.

The Ticino Landscape Restoration Plan

The Ticino Landscape Restoration Plan 2021-2031 (the Plan) is the main output of the project *Restoring the Ticino River Basin Landscape. One River – Many Systems – One Landscape* funded by the Endangered Landscape Programme from October 2019 to February 2021. The project was the preparatory phase for a coordinated transnational effort to restore the Ticino River Landscape shared by Italy and Switzerland. Once restored, this area will fully represent the only ecological corridor running through the Po Plain connecting the Alps, the Apennines and – through the Po River – the Adriatic Sea (see Figure 1).

At the end of the preparatory phase, project partners established the Ticino Landscape Restoration Initiative (the Ticino Initiative) and committed to implementing the Plan 2021-2031, with a view to welcoming new partners and stakeholders who share the same vision for the Landscape.

The Ticino Initiative contributes to Sustainable Development Goals 2 (Zero hunger), 3 (Good health and well-being), 6 (Clean water and sanitation), 13 (Climate action), 14 (Life below water) and 15 (Life on land) and to the UN Decade on Ecosystem Restoration 2021-2030.

Extended partnership

The Plan is the result of the coordinated efforts of the many committed representatives of NGOs, protected areas, public administrations, research institutions and service providers listed below:

- NGOs: Istituto Oikos (coordinator), LIPU-BirdLife Italy, Ficedula-BirdLife Switzerland, Italian Centre for River Restoration (CIRF)
- Protected area management bodies: Ticino Valley Regional Park and Campo dei Fiori Regional Park (Lombardy), Ticino and Lake Maggiore Regional Park (Piedmont), UNESCO Man and the Biosphere (MAB) Ticino Val Grande Verbano Reserve (Piedmont and Lombardy), Bolle di Magadino Natural Reserve and Piano di Magadino Park (Canton of Ticino)
- Public administrations: Region of Lombardy (DG Land and Disaster Relief), Region of Piedmont (DG Environment, Energy and Land – Water Protection Sector), Canton of Ticino (Land Department, Nature and Landscape Office-UNP and Watercourses Office-UCA), Province of Varese, Province of Pavia, Valli del Verbano Mountain Community
- Other entities: National Rice Authority, Po River Basin Authority, the Land Reclamation Authority of East Ticino Villoresi, the East Sesia Irrigation Association, the Regional Agency for Agricultural and Forest Services of the Region of Lombardy-ERSAF (River Contracts Unit and Agricultural Policy 4.0 and Supply Chain Innovation Unit)
- Research institutions: State University of Milan (Department of Agricultural and Environmental Sciences Production, Territory, Agroenergy-DiSAA and Department of Environment and Policy-ESP), State University of Varese (Department of Theoretical and Applied Sciences), State University of Pavia (Department of Earth and Environmental Sciences), State University of Turin (Department of Agriculture, Forest and Food Sciences-DISAFA)
- Service providers: Idrogea Servizi, Graia, ETIFOR, Mapping Change, NatCom, Eleade.



Figure 1: The Ticino River Landscape, which connects the Alps and the Apennines; the Po river carries its waters to the Adriatic Sea.

A Governance Roundtable and a Technical Secretariat will ensure the coordination, fundraising and follow-up of the Ticino Initiative at least until the end of 2022. This coordination structure was established through a Cooperation Agreement signed in February 2021 by the Italian and Swiss partners that participated in the preparation of the Ticino Landscape Restoration Plan 2021-2031.

Rationale

While this area is one of the wealthiest and most productive in Europe, hosting intensive agriculture, urban areas and dense infrastructure networks, the Ticino Landscape still features significant ecosystems and biodiversity and, to a certain extent, ecological processes and connectivity. This is also the result of the important efforts made by protected areas and other management bodies to protect the Landscape. Restoring the Landscape to its full potential is not only feasible but is a necessary step in ensuring that the area is resilient to global changes and is able to take advantage of mutual benefits between ecosystem services and human activities.

About 6.5 million people live in the Ticino Landscape, with people on either side of the border sharing the same language and culture, with a similar history, traditions, customs and livelihoods. This is not reflected, unfortunately, in the feeling of a common identity, and nationalist sentiments prevail. There are also noticeable administrative, legislative and methodological differences that call for a higher degree of coordination between the two countries and the various levels of governance (regional, cantonal and local). Efforts to address single issues in the landscape are underway, but they need to be more coordinated and enlarged to encompass interregional and transnational levels, whilst synergies with existing governance structures relevant to the Ticino Ecological Corridor have to be reinforced or are yet to be established.



Figure 2: Ticino Landscape, with administrative boundaries and main protected areas.

The Ticino Landscape

The Ticino Landscape is shared by the Canton of Ticino in Switzerland and the Regions of Lombardy and Piedmont in Italy. It covers 1,046,000ha – much more extensive than the Ticino watershed which strictly speaking is about 600,000ha. Decisions regarding the boundaries of the Ticino landscape were made according to considerations of ecological connectivity rather than morpho-physiography: in the Swiss portion, the Landscape is smaller than the watershed and includes the Ticino and the Brenno valleys, and the Tresa corridor connecting Lake Lugano and Lake Maggiore; in the Italian portion, it includes the Ticino Valley and the agro-ecosystems located between the Sesia and Lambro rivers in the Po Plain, irrigated by the waters of the Ticino through a vast secondary water network managed by two Land Reclamation Authorities. All considered, the Ticino Landscape includes the Upper Ticino river from its spring in the north to its entry into Lake Maggiore (CH), the lake itself, which is shared by the two countries, and the Lower Ticino to the Po River (IT), for the total length (248km) of the river. Several protected areas exist in the Landscape: Emerald and Natura 2000 sites, Ramsar sites, a UNESCO MAB Reserve, a national park, regional and cantonal parks and local protected areas.

Extending across the Alpine and the Continental biogeographical regions and with an elevation difference of about 2000m, the Ticino Landscape includes several habitat types from mountains to plains – alpine valleys, floodplains, water bodies, heathlands, reed-beds, oxbow lakes, wetlands, residual mixed deciduous forests of the Po Plain and agricultural areas. These complex ecosystems sustain significant biodiversity, with rare and endemic species that are globally threatened. The Ticino Landscape also has the potential to sustain reproductive populations of key species that went locally extinct in the recent past, like the Eurasian otter, the beluga and the Atlantic sturgeon.



The Lower Ticino River forms highly valuable habitats for biodiversity such as isles, oxbow lakes and dense riparian forests. In Italy, the river is protected by two Regional Parks and a MAB Reserve, and functions as an important ecological corridor within the urbanized and industrialized Po Plain. © Archivio Parco Ticino Lombardo

Long-term Vision

- The Ticino Landscape is a functional terrestrial and aquatic ecological corridor between the Alps, the Apennines, the Po Plain and the Adriatic Sea.
- Habitats and native species, including formerly extinct ones, exist in equilibrium and maintain a good conservation status.
- Water quality is good throughout the basin and river morphology is mostly natural.
- Existing physical barriers are permeable to wildlife and do not significantly impair natural river fluctuations and hydro-morphological processes.
- Economic activities and local communities are sustainable, support biodiversity and in turn benefit from ecosystem services such as recreation and the mitigation of floods and droughts.
- People recognize a common identity in the cross-border Ticino Landscape and take responsibility for their shared resources, adopting sustainable behaviour.
- Ecological connectivity is secured by authorities cooperating effectively with one another across the border.
- The Landscape is known to be a thriving economic area in harmonious balance with the environment.

Theory of Change

Restoration of the Ticino Landscape needs to address a number of issues:

- the complex governance framework, encompassing two regions, one canton, two countries (one EU and one non-EU) and many protected areas of different levels
- the lack of instruments and structures for a coordinated governance of the whole Landscape
- the limited economic and environmental sustainability of the area's agriculture
- the fragmentation of habitats due to urbanisation and the high density of linear infrastructure (roads, railways)
- the poor morphological and ecological state of river stretches (altered geomorphological processes, disconnection of the riverbed from the alluvial plain, limited lateral river mobility, hydropeaking)
- degraded habitats, especially in freshwater and agricultural ecosystems
- invasive alien species, altering native habitats and competing with indigenous species
- uncertain social acceptance of restoration measures, especially those aimed at giving the river more space
- the current effects of climate change, with a sustained period of drought and extreme climatic events such as wildfires and windstorms.

The extended partnership has developed a Theory of Change – a map of the changes needed to solve these barriers to restoration and to achieve the Vision for the Ticino Landscape – uniting all participants around five areas of change:

- Governance
- Ecosystem services and economic activities
- Ecological connectivity
- Species
- Climate change.

These areas of change correspond to the five overriding General Objectives which have been identified as the most effective way of restoring the Ticino Landscape and achieving the Vision:

I Create and strengthen the transnational governance of the Ticino Landscape

This refers to both the internal governance of the Ticino Initiative, the synergies with other governance structures, policies and plans affecting the Ticino Landscape, and the potential for new governance formats (e.g., a transnational River Contract for the Ticino River).

II Ensure that ecosystem services and human activities in the Ticino Landscape positively reinforce each other This refers to enhancing the ecosystem services provided by agricultural soils and forests linked to carbon sequestration and the promotion of carbon finance, as well as enhancing ecosystem services linked to tourism and recreation.

III Secure ecological connectivity between the Alps and the Apennines and between the Upper Ticino River and the Adriatic Sea This refers to enhancing the terrestrial and aquatic corridor through habitat restoration and recreation and protection of the ecological continuity in strategic areas, and making sure that they are functional, and restoring the natural processes of the river (e.g. river mobility, sediment transportation and environmental flows).

IV **Establish reproductive populations of locally-extinct species and secure good conservation status for threatened species** This refers to ameliorating the conservation status of target aquatic and semi-aquatic species, plants and animals that are highly threatened globally or endemic to the Po Plain.

V **Foster the climate resilience of ecosystems and human communities and mitigate the impact of extreme climate events** This refers to the impact of agricultural practices on the water table and on the vast secondary water network used for irrigation and, as a consequence, to the waters of the river and to biodiversity linked to the agro-ecosystems; it also concerns forest habitats hit by extreme events (wildfires, windstorms).

Action Plan 2021-2031

The Action Plan was built around these five General Objectives, each of which was broken down to Specific Objectives and further to Actions, for a total of 11 Specific Objectives and 75 Actions (see the following table for a summary).

In the Plan, each Action is described in detail, including: priority level (high or medium; Actions which were identified during the development of the Theory of Change and assigned a low priority were not included in this Plan but may be reconsidered in subsequent updates); expected start date and duration; partners and stakeholders involved; rationale; expected results; location; foreseen activities; budget; indicators; and references to more in-depth analyses when applicable.

In addition, a Communication Strategy was developed for the Ticino Initiative, a significant and critical component that addresses participation, communication and awareness raising and which is transversal to all Objectives. The Communication Strategy is organized around one communication general objective: to promote the Vision of the Ticino Initiative. It has 12 communication specific objectives (cross-cutting or by theme: agriculture, ecosystem services, habitat and species, governance, tourism), and 8 broad communication actions which will be further developed and tailored to various stakeholders as implementation of the previous 75 Actions proceeds. The Communication Strategy will support the resurgence of a common Landscape identity and ensure the public participation required to discuss, plan and implement Actions on the ground.

The Action Plan is flexible, containing Actions that are independent and yet connected to one another and that can be implemented jointly or separately throughout the duration of the Plan.

General Objective	I	GOVERNANCE Create and strengthen the transnational governance of the Ticino Landscape
Specific Objective	I.1	Establish governance tools and frameworks for the transnational management of the Ticino Landscape
Action	I.1.1	Guarantee the continuation of a secretariat for the Ticino Initiative
Action	I.1.2	Promote the Ticino Initiative and ensure that it is acknowledged at a political level in Italy and Switzerland
Action	I.1.3	Seek the support of EUSALP and the Alpine Convention for the Ticino Initiative
Action	1.1.4	Establish and pursue shared objectives with the UNESCO MAB Reserve Ticino Val Grande Verbano
Action	I.1.5	Promote the establishment of an international high-level political entity for the coordinated management of the Ticino Landscape
Action	I.1.6	Enter into a transnational River Contract for the Ticino river
Specific Objective	1.2	Secure national and international strategies and policies to support the Ticino Landscape
Action	I.2.1	Create synergies with the National Biodiversity Strategies of Italy and Switzerland
Action	1.2.2	Establish a working group on agricultural practices favourable to biodiversity and ecosystem services
Action	1.2.3	Create synergies with the plans on the Po river basin

General Objective	II	ECOSYSTEM SERVICES AND ECONOMIC ACTIVITIES Ensure that ecosystem services and human activities in the Ticino Landscape positively reinforce each other
Specific Objective	II.1	Increase the ecosystem services of soils on agricultural lands
Action	II.1.1	Promote sustainable annual cropping systems by incorporating green manure of catch crops into rice farming
Action	II.1.2	Promote the conversion of arable land and other degraded or infertile areas to permanent grassland
Action	II.1.3	Promote crop diversification and permanent soil cover
Action	II.1.4	Set up a round table with agricultural organizations
Specific Objective	II.2	Secure ecosystem services from forests
Action	II.2.1	Create and promote a financial mechanism to support ecosystem services from forests
Specific Objective	II.3	Ensure the maintenance of ecosystem services for tourism and recreation
Action	II.3.1	Align standards and IT applications for tourism management

General Objective	ш	ECOLOGICAL CONNECTIVITY Secure ecological connectivity between the Alps and the Apennines and between the Upper Ticino River and the Adriatic Sea
Specific Objective	111.1	Improve terrestrial connectivity in the Ticino Landscape
Action	III.1.1	Establish wetlands in the Municipalities of Besnate and Gallarate (IT)
Action	III.1.2	Restore vegetation and improve habitat at the "Torbiera di Mombello" wetland (IT)
Action	III.1.3	Enhance linear ecological continuity at the strategic ecological site "Pradaccio" in Laveno Mombello (IT)
Action	III.1.4	Enhance linear ecological continuity at the strategic ecological site "Parco del Margorabbia" (IT)
Action	III.1.5	Restore ecological continuity at the strategic ecological site Barasso-Comerio-Gavirate (IT)
Action	III.1.6	Improve the priority habitat of community interest 7220* "Petrifying springs with tufa formation (<i>Cratoneurion</i>)" (IT)
Action	III.1.7	Restore the Bardello river banks (IT)
Action	III.1.8	Improve the wetlands in the "Golfo della Quassa" local park (IT)
Action	III.1.9	Create a backdunal pond in the SPA "Reedbeds of Lago Maggiore"/SAC "Sabbie d'Oro" (IT)
Action	III.1.10	Restore the agricultural landscape connecting the Apennines to the Po Plain. Intervention 1 (IT)
Action	III.1.11	Restore the agricultural landscape connecting the Apennines to the Po plain. Intervention 2 (IT)
Action	III.1.12	Restore the agricultural landscape connecting the Apennines to the Po plain. Intervention 3 (IT)
Action	III.1.13	Restore ecological continuity between the Vernavola Canal and Special Protection Areas "Porta Chiossa Heronry" and "Carola Heronry" (IT)
Action	III.1.14	Restore dry meadows and heathlands and create core areas and ecological corridors within the SAC-SPA "Ticino Valley" (IT)
Action	III.1.15	Restore grassland and conserve local livestock breeds in the Casone-Montelame Estate (IT)
Action	III.1.16	Restore and create reproductive sites for amphibians in the Ticino and Lake Maggiore Regional Park (IT)

General Objective	ш	ECOLOGICAL CONNECTIVITY (continued)
Specific Objective	III.1	Improve terrestrial connectivity in the Ticino Landscape (continued)
Action	III.1.17	Maintain resurgent water and springs in the Ticino and Lake Maggiore Regional Park (IT)
Action	III.1.18	Control invasive alien plant species in the forests of the Ticino and Lake Maggiore Regional Park (IT)
Action	III.1.19	Manage open habitats 4030 (dry heaths), 6210 (semi-natural dry grasslands), 2330 (inland dunes with open <i>Corynephorus</i> grasslands) and therophyte pioneer stages in the Ticino and Lake Maggiore Regional Park (IT)
Specific Objective	III.2	Improve connectivity and natural processes in the Ticino river
Action	III.2.1	Prepare the Sediment Management Plan and define a functional mobility corridor compatible with land uses for the Lower Ticino river (IT)
Action	III.2.2	Prepare guidelines for the restoration of the secondary water network
Action	III.2.3	Restore the sediment transport continuity of the Upper Ticino river (CH)
Action	111.2.4	Redress hydropeaking along the Upper Ticino river and tributaries (CH)
Action	III.2.5	Restore unrestricted fish migration in the Upper Ticino river and tributaries (CH)
Action	III.2.6	Restore minimum/residual outflows in the Upper Ticino river and Brenno tributary (CH)
Action	III.2.7	Restore the Alpine portion of the Ticino river from its source to Lake Maggiore, and tributaries (CH)
Action	III.2.8	Restore the shores of Lake Maggiore in Switzerland
Action	III.2.9	Restore the lateral mobility of the Lower Ticino river in the area of Cuggiono (IT)
Action	III.2.10	Restore the lateral mobility of the Lower Ticino river in the area of Abbiategrasso (IT)
Action	III.2.11	Restore the lateral mobility of the Lower Ticino river in the area of Vigevano downstream of the Ayala oxbow (Lanca Ayala) (IT)
Action	III.2.12	Adapt the Vigevano sill to restore the continuity of the sediment transport (IT)
Action	III.2.13	Restore the Scuropasso Stream (IT)
Action	III.2.14	Restore the river habitat in the Lenza Stream (IT)
Action	III.2.15	Restore the mouth of the Tresa river (IT)
Action	III.2.16	Restore the Tresa river banks (IT)
Action	III.2.17	Restore ecological continuity at the "Tinella" strategic site (IT)
Action	III.2.18	Improve river habitat at the Acquanegra Stream in the "Canneti del Lago Maggiore" SPA/"Golfo di Quassa" local protected area (IT)
Action	III.2.19	Restore the Ticino river in Upper and Middle Leventina (CH)
Action	III.2.20	Restore the Ticino river in Riviera (CH)
Action	III.2.21	Restore the Ticino river by "I Boschetti" (CH)
Action	III.2.22	Restore the Ticino river by "I Saleggi"(CH)

General Objective	IV	SPECIES Establish reproductive populations of locally-extinct species and secure a good conservation status to threatened species
Specific Objective	IV.1	Improve the conservation status of locally extinct or threatened aquatic species
Action	IV.1.1	Strengthen the populations of Piedmont quillwort (Isoëtes malinverniana)
Action	IV.1.2	Proceed with the reintroduction of beluga (Huso huso) to the Ticino basin
Action	IV.1.3	Start the reintroduction of the European sturgeon (Acipenser sturio) to the Lower Ticino
Action	IV.1.4	Restore river habitats favourable to European eel (Anguilla anguilla) in the Ticino basin
Action	IV.1.5	Strengthen the populations of white-clawed crayfish (<i>Austropotamobius pallipes</i>) and restore favourable habitats in Prealpine areas
Specific Objective	IV.2	Improve the conservation status of locally extinct or threatened semi-aquatic species
Action	IV.2.1	Strengthen the populations of the common false pimpernel (<i>Lindernia procumbens</i>) in the Ticino Landscape
Action	IV.2.2	Strengthen the populations of four-leaf clover (Marsilea quadrifolia) in the Ticino Landscape
Action	IV.2.3	Increase habitats favourable to reproductive populations of the agile frog (<i>Rana latastei</i>) in the Ticino Landscape
Action	IV.2.4	Strengthen populations of the endemic subspecies of the common spadefoot (<i>Pelobates fuscus insubricus</i>) and restore favourable habitats
Action	IV.2.5	Restore habitat for the reproduction of the European pond turtle (<i>Emys orbicularis</i>) in the Ticino Landscape
Action	IV.2.6	Restore a reproductive population of the European otter (Lutra lutra) in the Ticino river basin

General Objective	v	CLIMATE CHANGE Foster the climate resilience of ecosystems and human communities and mitigate the impact of extreme climate events
Specific Objective	V.1	Increase the resilience of the secondary water network of the Lower Ticino river
Action	V.1.1	Assess the hydrological balance at large scale
Action	V.1.2	Establish permanent monitoring of the water table level in the area of the East Ticino Villoresi Land Reclamation Authority
Action	V.1.3	Update the hydrological monitoring system of water bodies managed by private entities receiving water from public Land Reclamation Authorities
Action	V.1.4	Restore and enhance the irrigation artifacts of the East Ticino Villoresi Land Reclamation Authority
Action	V.1.5	Promote flooding of rice fields in spring and winter in the area of the East Sesia Irrigation Association
Action	V.1.6	Promote winter flooding of permanent meadows and marshlands
Specific Objective	V.2	Increase the resilience of forest ecosystems in the Prealpine area of the Ticino Landscape
Action	V.2.1	Guide the restoration of Prealpine forests prone to extreme weather events
Action	V.2.2	Take into account the contribution of animal species to forest restoration in the Prealpine area following extreme weather events.

Fundraising plan

Together, the 75 Actions and the 8 broad communication actions make up the Ticino Initiative Action Plan 2021-2031, which will require 17 million Euros (18.5 million Swiss Francs) to implement. Of this, 12.5 million Euros will be required to finance the high-priority Actions. A funding strategy has been developed which is:

- modular: funding will be sought for individual Actions or groups of Actions, combined into modules that are related to one another but can be funded and implemented separately
- incremental in time and in space: one or more modules at a time
- shared: funding the Actions will be the responsibility of all partners and stakeholders.

Adaptive management and sustainability

The Ticino Landscape Restoration Initiative has, from the outset, been framed to embrace adaptive management and to be flexible. The current coordination structure (Governance Roundtable and Technical Secretariat) is being tested at least until the end of 2022: partnership is open, actions will be implemented incrementally and by modules, monitoring and evaluation will play a critical role, the action plan will be updated regularly and as the need arises.

The sustainability of the Ticino Landscape Restoration process is ensured by the long-term nature of the Action Plan 2021-2031, with a significant investment in building the governance structure of the Ticino Initiative and pursuing synergies with the existing governance framework. Continued and ongoing dialogue between all parties serves to address any critical issue which could jeopardize the process.

The sustainability of the Ticino Landscape, once restored, is secured by the shared responsibility of the parties involved and the alignment of their mandates with the Plan's objectives. Active stakeholder participation and extensive communication will also be crucial. Restoration results will be embedded into land use and management plans, and an awareness of a common identity will be promoted throughout the Landscape.

Financial resilience is secured by the modular fundraising strategy and the enabling environment provided by European strategies (e.g., Farm to Fork, Biodiversity), the UN Decade on Ecosystem Restoration, and the national post-Covid plans for recovery and resilience.

For many years now the individual members of the extended partnership have been taking care of the Ticino Landscape each in their own area and sector and through a broad range of significant activities. With the Restoration Plan, all the work that has been done so far is capitalized upon and taken to the next level. This is the beginning of the coordinated effort to restore the Ticino Landscape.



Project promoted by



Funded by



PAVIA

In partnership with





















Contributing to

FICEDULA

