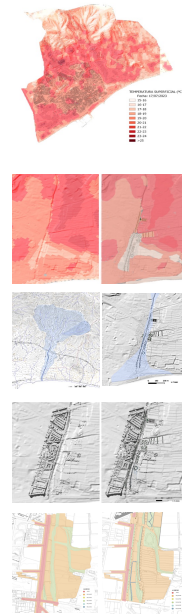


SEE AND ASK QUESTIONS TO INTERVENE



MAP AND MEASURE TO VERIFY HYPOTHESES



THINK BIG TO TRANSFORM



THINK SMALL TO GET STARTED



DESIGN SOLUTIONS TO BUILD PROCESSES



DEMONSTRATION SCHEME PROJECT. CONSTRUCTION III 2023-2024. LANDSCAPE ARCHITECTURE BACHELOR'S DEGREE EEABB-ETSAB. COHESION BETWEEN CITY AND COUNTRY. AUTHORS: LUNA OSES, ANTOINETTE VARGAS, JUNE GORROTXATEGI

The projects presented are the most representative of the 3rd year of Landscape construction III of the Landscape Grade. This subject combines Regional and Urban Planning and Technology Departments. They are a continuation of the projects of the project course. All of them start with an environmental analysis to detect the environmental weaknesses (erosion, flooding areas, high surface temperatures, hydric stress effects, etc.) that cause urban and territorial defragmentation. After the diagnosis, a strategy is then implemented in the Master Plan to mitigate the effects of climate change and provide living conditions for people and animals by achieving territorial and urban reconnection. The scales of the project are three: territorial, intermediate, where we work with a pilot area, and the construction detail scale (they show the construction details that allow how to materialize the strategies). The results of the calculations and analyses are shown in the plans but are presented in an annex.

The first project "SER&MIERES finds a methodology to re-connect Mieres with the water with the river SER to provide water resources. "RIVER REGEN" faces the regeneration of the river in three different areas supporting the solutions with detailed calculations. "WATER-TERRITORY AND BIODIVERSITY" works on the ecological connectivity through blue-green infrastructure that connects the landscape. "CIRCULAR WATER MANAGEMENT" provides a model of circular water efficiency with benefits for both human uses and the natural environment. "ENVIRONMENTAL AND SOCIAL RESTORATION" works on strategies to restore environmental and social defragmentation to reconnect them.



|                                                    |                                                                                                                                                                                                                                      |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title of the project</b>                        | SER & MIERES – Olot                                                                                                                                                                                                                  |
| <b>Authors</b>                                     | Rut Panuse - Júlia Rocabayera - Ariadna Garriga                                                                                                                                                                                      |
| <b>Title of the course</b>                         | Construction III                                                                                                                                                                                                                     |
| <b>Academic year</b>                               | 2024-2025                                                                                                                                                                                                                            |
| <b>Teaching Staff</b>                              | Mar Pérez – Miguel Mayorga                                                                                                                                                                                                           |
| <b>Department / Section / Program of belonging</b> | Department of Architectural Technology - Department of Urbanism, Territory and Landscape (UTP)<br>School of Agri-Food and Biosystems Engineering (EEABB) School of Architecture (ETSAB)<br>Polytechnic University of Catalonia (UPC) |
| <b>University / School</b>                         |                                                                                                                                                                                                                                      |



Mieres is town in a valley near but disconnected from Ser river. It has one of the highest pluviometries of Catalonia (average 1000mm/year) and one of the highest temperatures during the summer. Water resource is not available anymore for Mieres inhabitants. The analysis of Mieres is based on its patrimonial heritage which vertebrates the landscape, biotic (forest, herbaceous and riverside forest) and abiotic characteristics (topography, soils type and hydrography).

The project is based on 2 strategies: the first one is the intervention on margins of the plots to generate permanent humidity strips through a fixed prototype. They change according to the type of agro-farming. Each plot has its own characteristics ABC. Three types of plots are determined by the direction of the movement of the subsoil moved towards the Ser river. The second one is based on the economy of the pasture land monopolized by crops and pastures of pasture use, a new agricultural-regenerative fruit-growing system to the margins strips is implemented reducing fire charge due to high surface temperatures.

The hydrographic basin of Mieres flows into the Ser river in cote 280m. All interventions are focused on this level in a circular way between the town and the river to establish a route over time where variables forest/ urban/ roads/ plot/ road are intersected with the river. They will be points of contemplation and observation of the water as reducing surface temperatures and taking water to town.

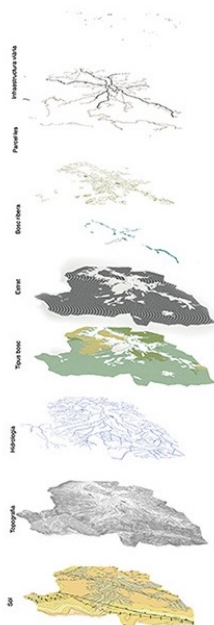
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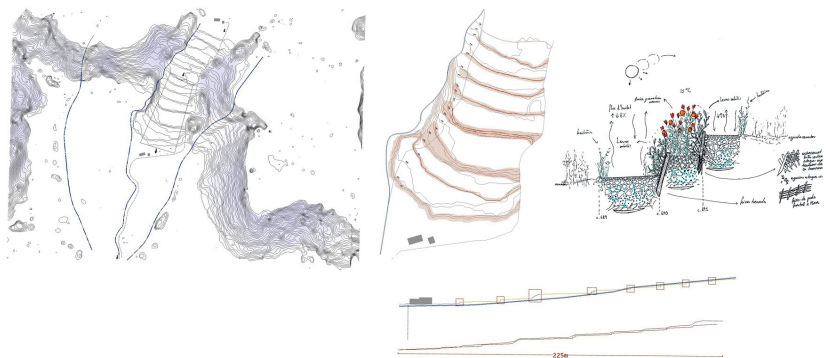
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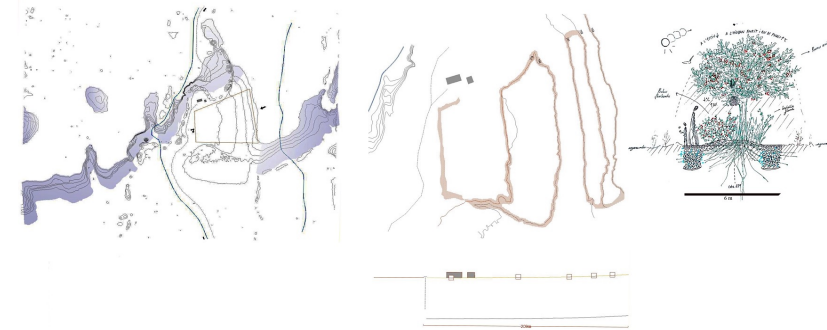




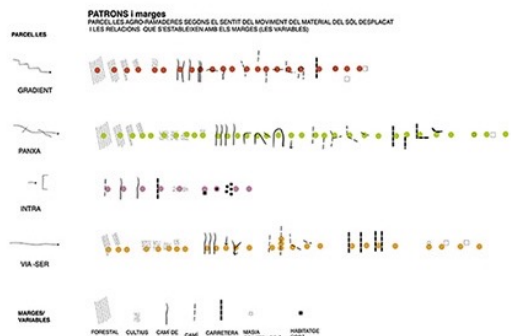
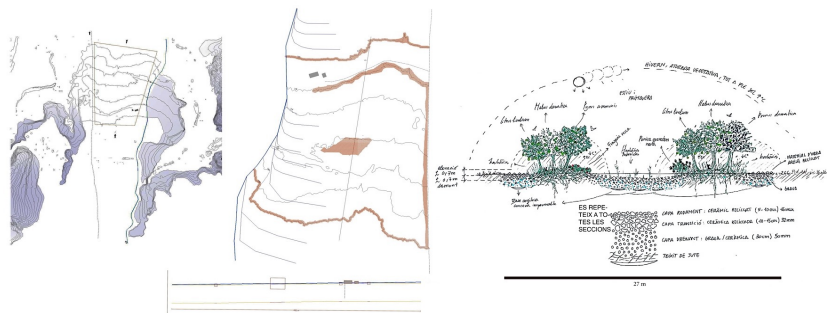
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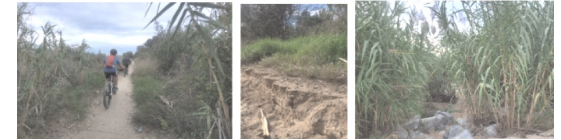
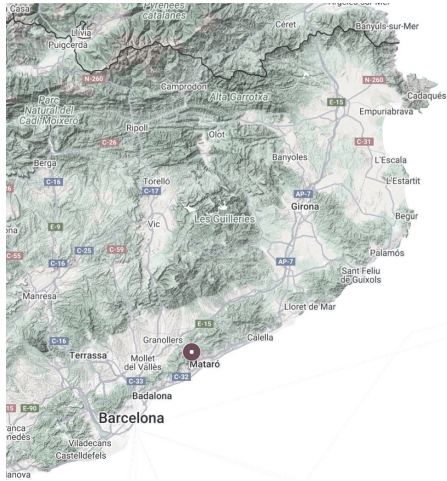
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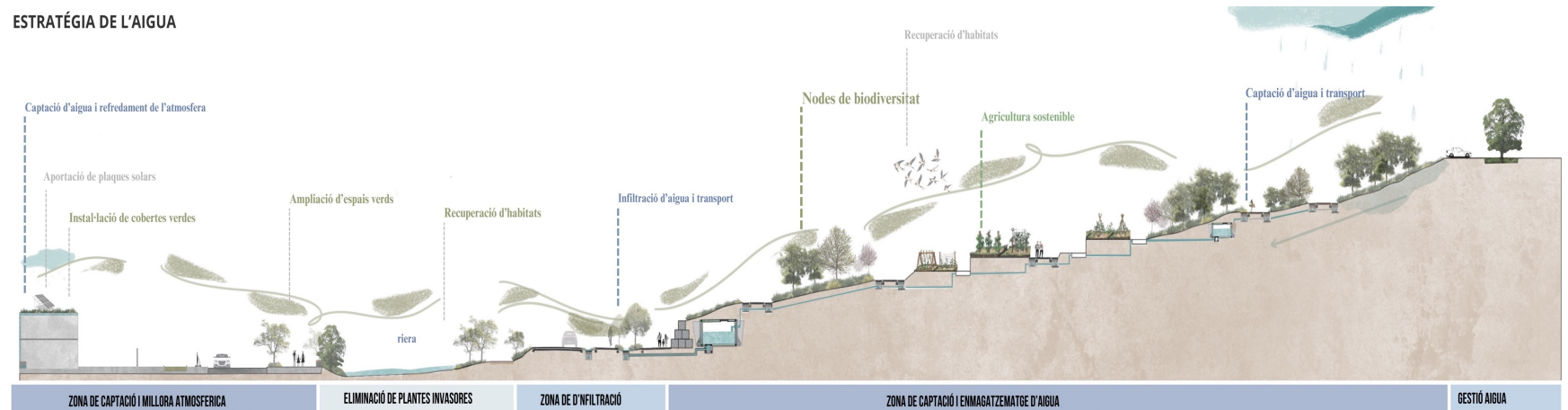
via-ser







## ESTRATÈGIA DE L'AIGUA



Country/City

University / School

Academic year

Title of the project

Authors

Spain/Barcelona

Polytechnic University of Catalonia, School of Agri-Food and Biosystems Engineering (EEAB) School of Architecture (ETSAB)

2024-2025

RIVER REGEN(A)rgentona

Irene Angulo – Llorenç Gracia

**Title of the project**

**Authors**

**Title of the course**

**Academic year**

**Teaching Staff**

**Department / Section / Program of belonging**

**University / School**

RIVER REGENR(A)rgentona - Mataró

Irene Angulo – Llorenç Gracia

Construction III

2024-2025

Mar Pérez – Miguel Mayorga

Department of Architectural Technology - Department of Urbanism, Territory and Landscape (UTP)

School of Agri-Food and Biosystems Engineering (EEABB) School of Architecture (ETSAB)

Polytechnic University of Catalonia (UPC)



The project is focused on the regeneration of a stretch of the Argentona Riera (river) in Mataró. The diagnosis arose a modified river course, uncontrolled urban and green development (degraded or eroded or invaded green areas), air pollution and no strategy to mitigate high surface temperatures and the droughts and floods suffered. After a detailed analysis of soil types, topography, field capacity, surface temperatures, resilient and local species for green areas, they proposed a Masterplan to regenerate the part of the Argentona. It's focused on three areas, worked on an intermediate and detailed scale.

The first one is to recuperate the traditional orchard land use through river terraces and rainwater harvesting (supported with calculations of water requirements, soil capacity and rainwater harvesting for the last ten years). The second area is the main street of the river where its section is changed and converted in a promenade. Viability of vehicles gauging was previewed and a shaded green promenade with a shaded bicycles lane was projected and the increase the permeable areas to manage floods and albedos to reduce surface temperatures. The third area is the industrial mainly impervious area with high surface temperatures and a high island effect area. Pervious and green areas and roofs irrigated with rainwater harvested to reduce surface temperatures on the streets was implemented. Floods management was calculated in the area projected.

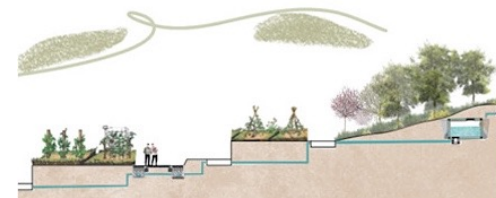
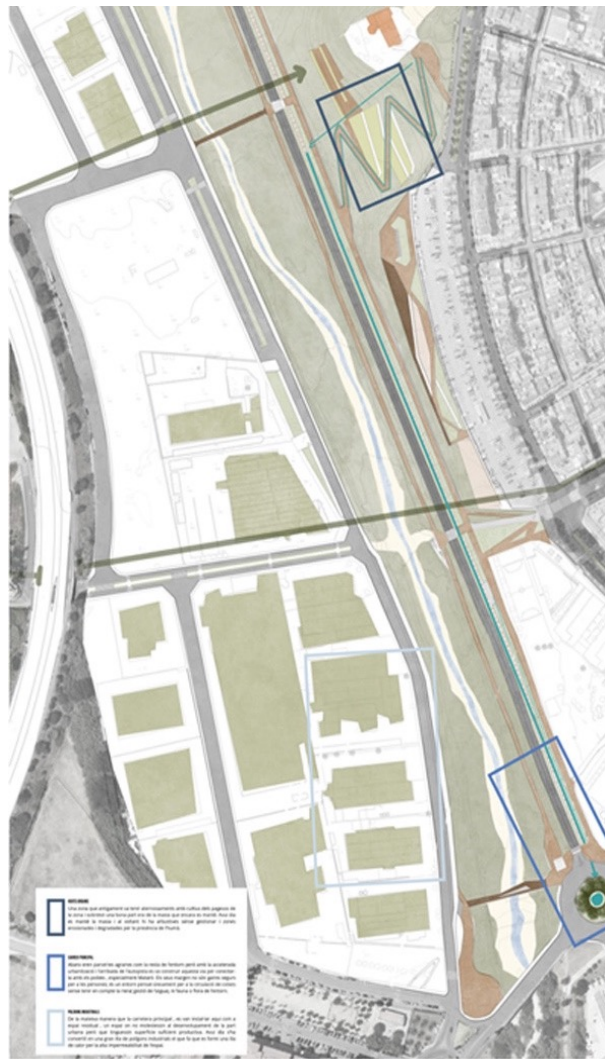
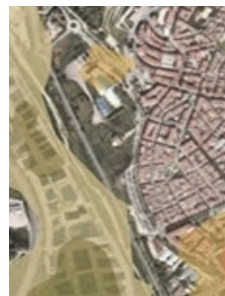
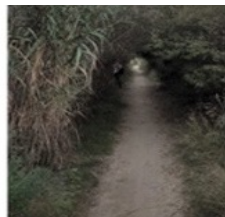
Greening actions where implemented with shades and generated life conditions for protected fauna species and to allow social connectivity and human comfort.

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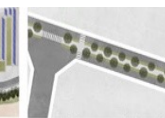
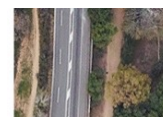
PROJET / 13



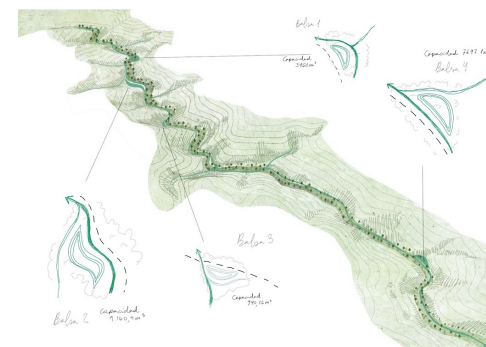
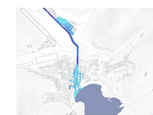
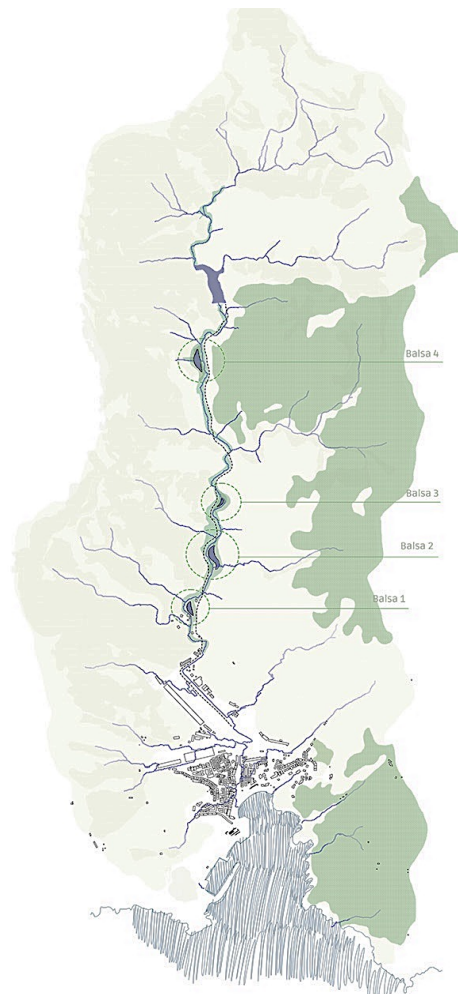
PROJET / 13



PROJET / 13







Country/City

University / School

Academic year

Title of the project

Authors

Spain/Barcelona

Polytechnic University of Catalonia, School of Agri-Food and Biosystems Engineering (EEAB) School of Architecture (ETSAB)

WATER-TERRITORY AND BIODIVERSITY - Portbou

2024-2025

Aldair Linares – Aaron Torrent – Martina Tarés

**Title of the project**

**Authors**

**Title of the course**

**Academic year**

**Teaching Staff**

**Department / Section / Program of belonging**

**University / School**

WATER-TERRITORY AND BIODIVERSITY - Portbou

Aldair Linares – Aaron Torrent – Martina Tarés

Construction III

2024-2025

Mar Pérez – Miguel Mayorga

Department of Architectural Technology - Department of Urbanism, Territory and Landscape (UTP)

School of Agri-Food and Biosystems Engineering (EEABB) School of Architecture (ETSAB)

Polytechnic University of Catalonia (UPC)



The project proposes the creation of a system of rainwater retention and lamination ponds in the municipality of Portbou. The aim of the project is mitigating the effects of torrential rains, reducing the risk of overflows and favouring the regeneration of natural habitats associated with temporary wet environments.

Biodiversity, in a Mediterranean context, is marked by episodes of intense rainfall and rapid runoff, especially in very sloped sites like those surrounding Portbou. The implementation of green infrastructures for temporary water retention is proving to be an effective and sustainable solution. In addition to their hydraulic function, these ponds are conceived as elements of high ecological value. A tool to reconnect defragmented landscapes. Their design incorporates naturalized slopes, native riverside vegetation and waterlogged areas that will favour the presence of amphibians, birds and aquatic flora, contributing to the ecological connectivity of the territory.

Calculations for those rainwater retention and lamination ponds show that they could manage 100% of intense rain for high return periods (100 years).

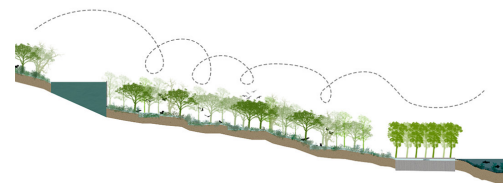
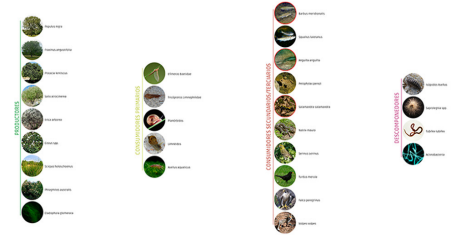
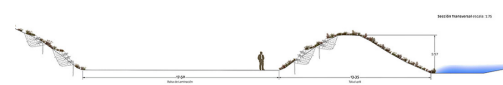
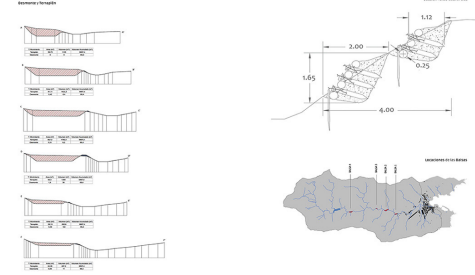
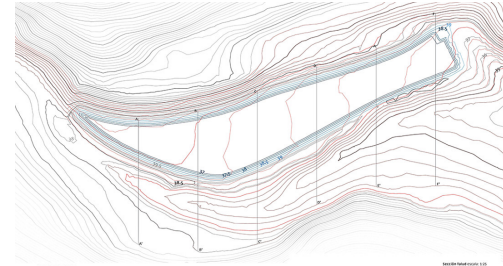
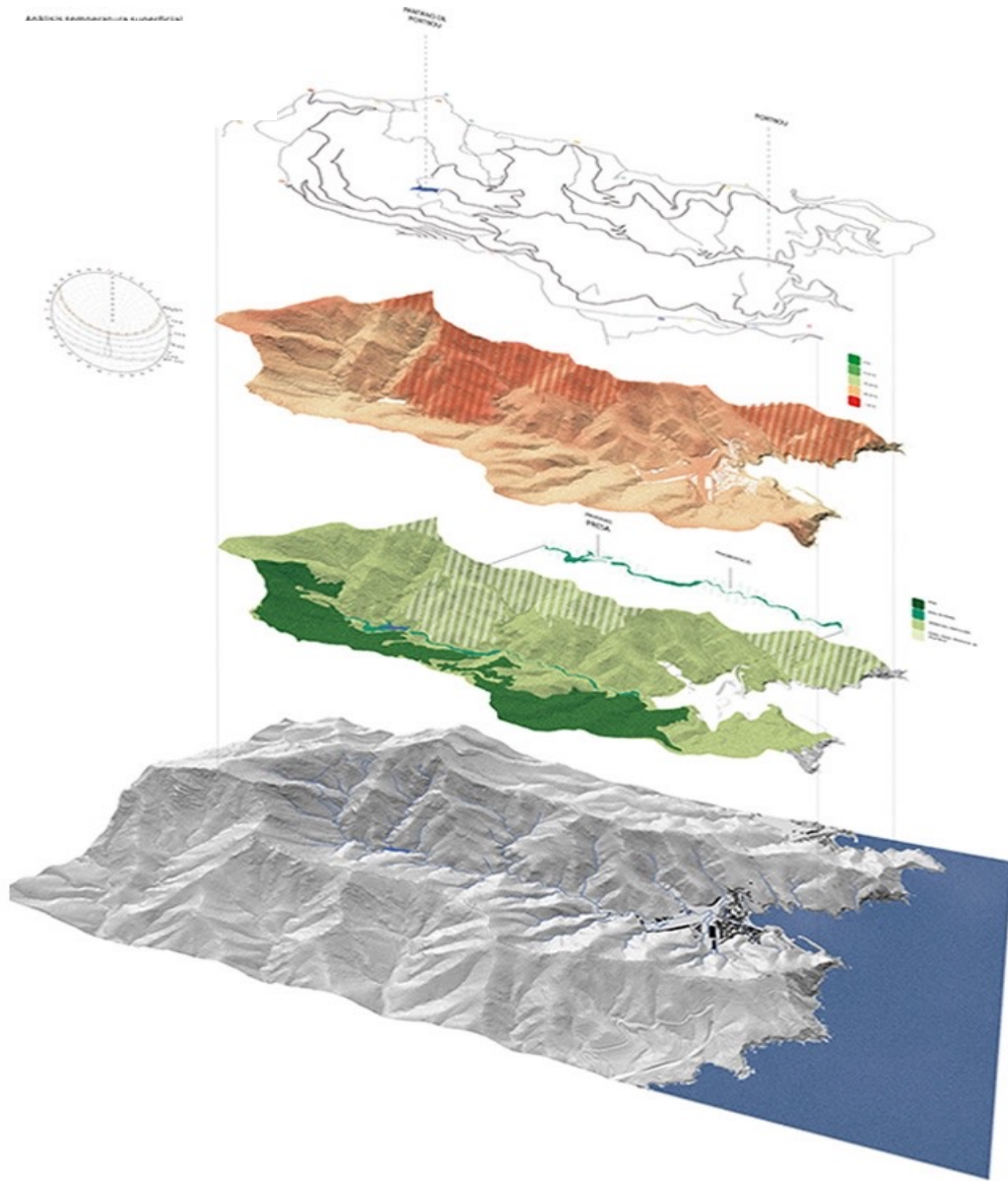
Ecological connectivity is achieved through these blue-green areas that connect the landscape.

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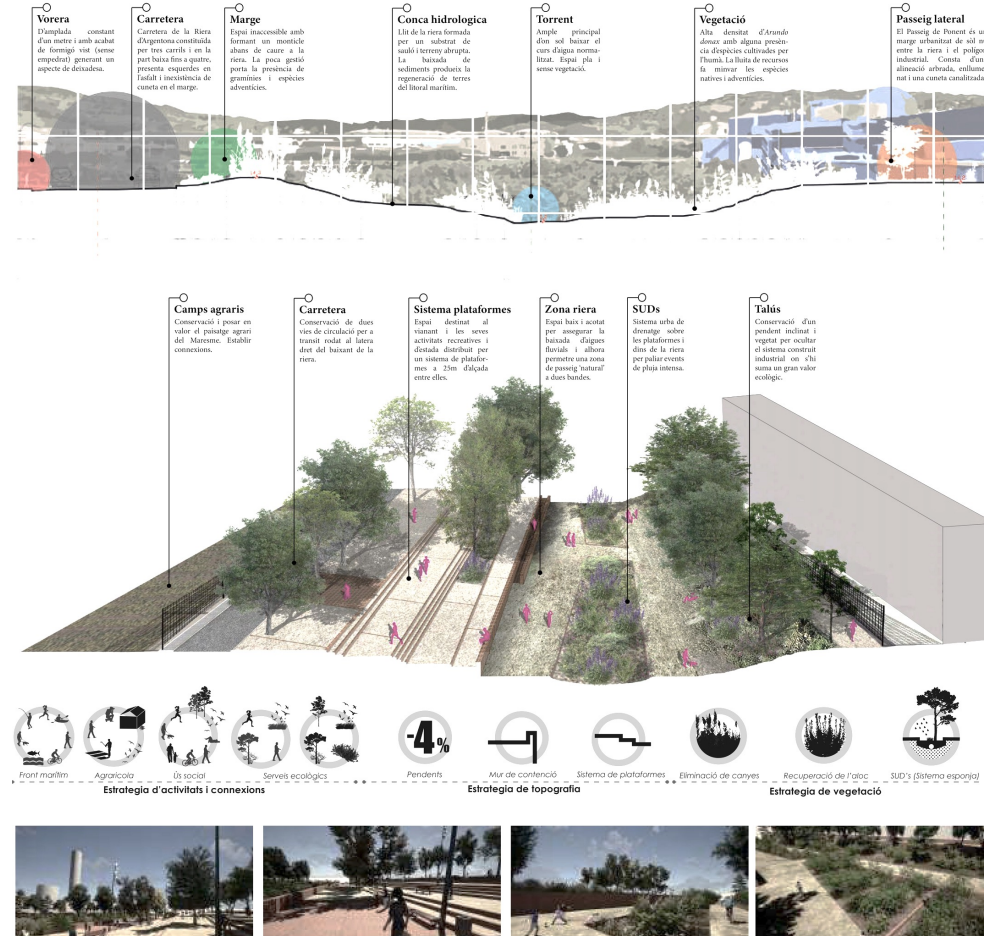
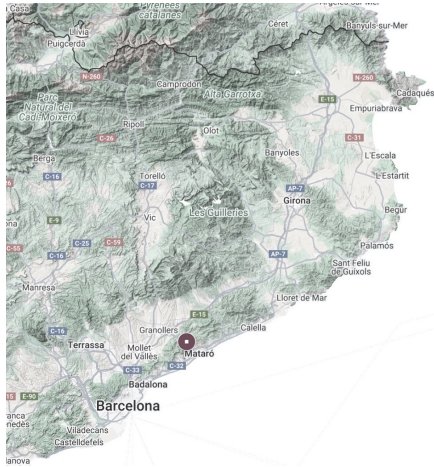
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Country/City

University / School

Academic year

Title of the project

Authors

Spain/Barcelona

Polytechnic University of Catalonia, School of Agri-Food and Biosystems Engineering (EEABB) School of Architecture (ETSAB)

2024-2025

ENVIRONMENTAL & SOCIAL RESTORATION. Argentona - Mataró

Jordi Haro - Enric Poyo - Marc Quiles

|                                                    |                                                                                                                                                                                                                                      |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title of the project</b>                        | ENVIRONMENTAL & SOCIAL RESTORATION. Argentona - Mataró                                                                                                                                                                               |
| <b>Authors</b>                                     | Jordi Haro - Enric Poyo – Marc Quiles                                                                                                                                                                                                |
| <b>Title of the course</b>                         | Construction III                                                                                                                                                                                                                     |
| <b>Academic year</b>                               | 2024-2025                                                                                                                                                                                                                            |
| <b>Teaching Staff</b>                              | Mar Pérez – Miguel Mayorga                                                                                                                                                                                                           |
| <b>Department / Section / Program of belonging</b> | Department of Architectural Technology - Department of Urbanism, Territory and Landscape (UTP)<br>School of Agri-Food and Biosystems Engineering (EEABB) School of Architecture (ETSAB)<br>Polytechnic University of Catalonia (UPC) |
| <b>University / School</b>                         |                                                                                                                                                                                                                                      |



The goal of the project is the environmental and social restoration and re-connection of this stretch of the Argentona river.

The environmental restoration is focused on two actions. The first one is a diagnose of a detailed inventory of invasive and native species. After that, the elimination of invasive species and restore the local ecological structure to stabilize and strengthen the ecosystem. The second one is the recovery of the Riera de Argentona aquifer through the implementation of measures to restore and preserve the aquifer, guaranteeing its long-term sustainability. Calculations of the rainwater runoff infiltration have been included in the project.

The social restoration is based in three interventions. The first one is the creation of routes for bicycles and pedestrians which connect the different landscapes, making it easier for walkers and cyclists to enjoy the natural environment. The second one is the construction of a viewpoint: taking advantage of the topography of the river banks, it is proposed to build an access that rises to a viewpoint before descending to the stream. Also, construction systems to green the area avoiding erosion have been implemented. This viewpoint will provide panoramic views of the natural environment of the stream and will offer a space for rest and contemplation before accessing the lower level. This solution combines functionality with an enriching visual experience for visitors.

Finally, the expansion of narrow spaces in areas with too narrow sidewalks that will be widened to 2 meters and will corrected interruptions to unify the routes.

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Construir un mirador: Aprovechando la topografía de los márgenes del cauce del río se propone construir un acotio que se eleve hasta un mirador antes de descender hacia la riera. Este mirador permitirá disfrutar de vistas panorámicas del entorno natural de arroyo y ofrecerá un espacio para el descanso y la contemplación antes de acceder al nivel inferior. Esta solución combina funcionalidad con una experiencia visual enriquecedora para los visitantes.

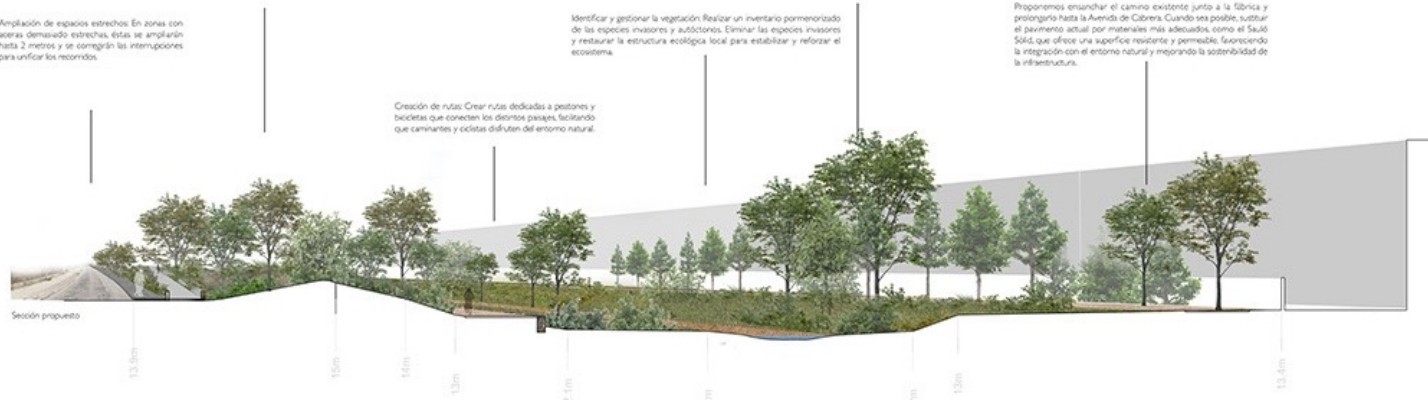
Recuperación del acuífero de la Riera de Argentera: Implementar medidas para restaurar y preservar el acuífero, garantizando su sostenibilidad a largo plazo.

Ampliación de espacios estrechos: En zonas con aceras demasiado estrechas, éstas se ampliarán hasta 2 metros y se corregirán las interrupciones para unificar los recorridos.

Identificar y gestionar la vegetación: Realizar un inventario pormenorizado de las especies invasoras y autóctonas. Eliminar las especies invasoras y restaurar la estructura ecológica local para estabilizar y reforzar el ecosistema.

Proponemos ensanchar el camino existente junto a la fábrica y priorizarlo hasta la Avenida de Calders. Cuando sea posible, sustituir el pavimento actual por materiales más adecuados, como el Soud Solid, que ofrece una superficie resistente y permeable, favoreciendo la integración con el entorno natural y mejorando la sostenibilidad de la infraestructura.

Creación de rutas: Crear rutas dedicadas a peatones y bicicletas que conecten los distintos paisajes, facilitando que caminantes y ciclistas disfruten del entorno natural.



Country/City

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University / School

Polytechnic University of Catalonia, School of Agri-Food and Biosystems Engineering (EEAB) School of Architecture (ETSAB)

Academic year

CIRCULAR WATER MANAGEMENT: GREEN & BLUE INFRASTRUCTURE. Argentera River-Mataró

Title of the project

2024-2025

Authors

Yike Tian – Lu Ji

**Title of the project**

**Authors**

**Title of the course**

**Academic year**

**Teaching Staff**

**Department / Section / Program of belonging**

**University / School**

CIRCULAR WATER MANAGEMENT: GREEN & BLUE INFRASTRUCTURE. Argentona River-Mataró

Yike Tian – Lu Ji

Construction III

2024-2025

Mar Pérez – Miguel Mayorga

Department of Architectural Technology - Department of Urbanism, Territory and Landscape (UTP)

School of Agri-Food and Biosystems Engineering (EEABB) School of Architecture (ETSAB)

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This project proposes an integral and sustainable water management in the final stretch of the Argentona stream before it flows into the sea. It integrates actions at three levels: Rainwater harvesting and reuse at the shopping centre for internal uses guaranteeing the monthly self-sufficiency of the shopping centre; rainwater harvesting and reuse from the parking lot to irrigate the plant species in the parking lot and implementation of an irrigation system of the agricultural fields using water from the creek and favouring infiltration into the subsoil to reduce the risk of flooding and improve the hydrological balance of the area and finally, rainwater harvesting through suds in a depo in order to guarantee the watering of the parking lot in months of low rainfall.

Also, the parking area and the commercial building show very high surface temperatures. In the parking shades are provided with greened pergolas and the roofs are implementing green roofs irrigated with rainwater harvested in the water depos. Shades and water retention in green solutions will decrease surface temperatures of the site.

The overall objective is to transform a critical point of the territory into a model of water efficiency, urban resilience and environmental sustainability, with benefits for both human uses and the natural environment.

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