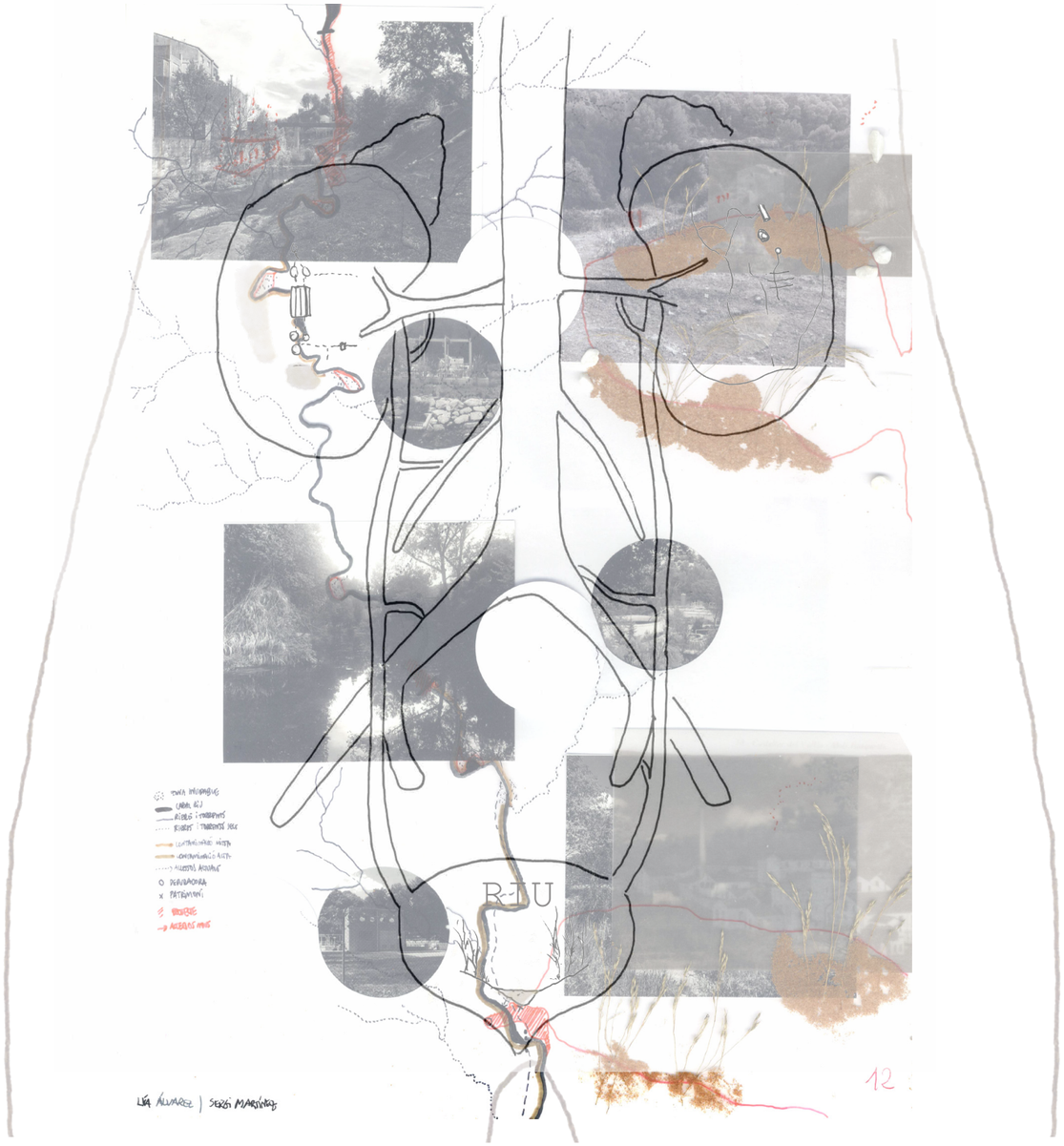
EDAR

cat. Estació Depuradora d’Aigües Residuals

Eng. Sewage treatment plant



PDAR

cat. PARC Depurador d’Aigües Residuals

Eng. Sewage treatment PARC

Country /City Spain / Sant Cugat del Vallés

University / School UPC / ETSAV. Escola Tècnica Superior d’Arquitectura del Vallès.=

Academic year Master Eniversitari en Arquitectura

Title of the project **P**.arcs del **D.A.R.**rere. Of EDAR environments as new spaces of hydro forest gestion for the fluvial restauration.=

Authors Sergi Martínez Migens | Lúa Álvarez Domínguez

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TECHNICAL DOSSIER

Title of the project P.arcs del **D.A.R.**rere. Of EDAR environments as new spaces of hydro forest gestion for the fluvial restauration

Authors Lúa Álvarez Domínguez | Sergi Martínez Migens

Title of the course Rethinking the Upper Ripoll River basin

Academic year Master Universitari en Arquitectura

Teaching Staff Josep Ricart | Xavier Gimferrer

Department / Section / Program of belonging Projects / Final project Master Degree

University / School UPC / ETSAV. Escola Tècnica Superior d'Arquitectura del Vallès.=

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Written statement, short description of the project in English, no more than 250 words

PROBLEM. Water is an increasingly scarce resource. Due to climate change, there will be less and less water in our rivers. This results in worse water quality, especially in the case of stationary rivers where the natural flow is minimal. In our case study, Ripoll river, **70%** of its flow is **sewage.**

Currently, **58% of Catalan rivers are not in good condition** despite the implementation of the EDARs (Sewage treatment plants), which have a positive impact yet a limited effect. In addition, these infrastructures and their **water cycle are invisible** to the citizenship, which explains the limited awareness of its environmental relevance.

MECHANISEM. Knowing the aim is to improve water quality and the way in which we manage the resource, empowering **EDAR environments as nodes for river restoration** and expanding its role may be the method to achieve it.

At the same time, these peripheral spaces characterized by the presence of **vacant lots and old abandoned factories** are in being colonized by the **third landscape**; optimal context for rethinking new natural areas and binding them with the population who has always lived behind them, in the **backyard of the city**.

For further information

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12th International Biennal Landscape Barcelona

Barcelona **October 2023**

SCHOOL PRIZE

SCALE **CATALONIA.** ECOLOGICAL STATE OF RIVER

100 km

IMPLEMENTATION

The project **"P.arcs del D.A.R.rrere"** develops this thesis in the **upper Ripoll River basin**. Along its route, it proposes a **series of intervention strategies** that materialize in three **hydroforestry management parks** with a key role in improving this tributary of Besòs River. At the same time, they become **connection points with the river for the municipalities** of Sant Llorenç Savall and Castellar del Vallès, making **visible the cycle of the water** that starts when tap water is used or a drop of rain falls on asphalt.

BESÒS AND RIPOLL RIVERS BASIN. ECOLOGICAL IMPACT IN RIVERS

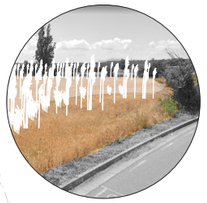
1 km

1 **PDAR**
Sant Llorenç Savall
30 hect_15.000 m³

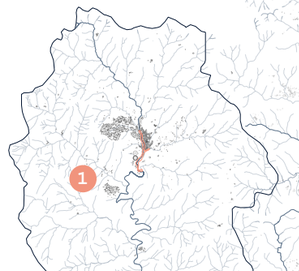
C **NATURAL SEWAGE TREATMENT LAGOON**
Edar Bigues i Riells

9 **PDAR**
La Roca
1,03 hect._4.000 m³

E **TRIBUTARY RIVER PURIFICATION**
Riera de Cànoves



10 **PDAR**
La Garriga
30,9 hect_80.000 m³



4 **PDAR**
Santa Eulàlia de Ronça-na
6,5 hect_15.000 m³

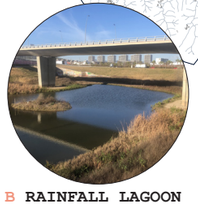
A **TERTIARY LAGOON**
Can Cabanyes

8 **PDAR**
La Llagosta
5 hect_10.000 m³

2 **PDAR**
CASTELLAR DEL VALLÈS
14,6 hect_38.000 m³

3 **PDAR**
Montcada
8,5 hect_20.000 m³

D **DINAMIC RIVER SIMULATION**
Urban River Lab



B **RAINFALL LAGOON**
Viladecans

F **IRRIGATION CANAL PURIFICATION**
Molí Vermell

7 **PDAR**
Sabadell
24,6 hect_30.000 m³

6 **PDAR**
Sabadell riu-sec airoport
63,7 hect_120.000 m³

5 **PDAR**
Sabadell riu-sec airoport
17,9 hect_45.000 m³

CASTELLAR DEL VALLES. PDAR

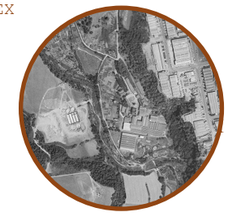
500 m

CONTINUOUS STREAM - SEWER NETWORK
0,05m³/S

VARIABLE STREAM - RAIN

TOPOGRAPHIC HUMIDITY INDEX

VARIABLE DISCONTINUOUS STREAM
RIU RIPOLL
1,15m³/S



1995

2008

W6.Irrigation system

TIME

-14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0

EDAR CONSTRUCTION

OLD FACTORY DEMOLITION

SENSORY TOUR. CURRENT STATUS

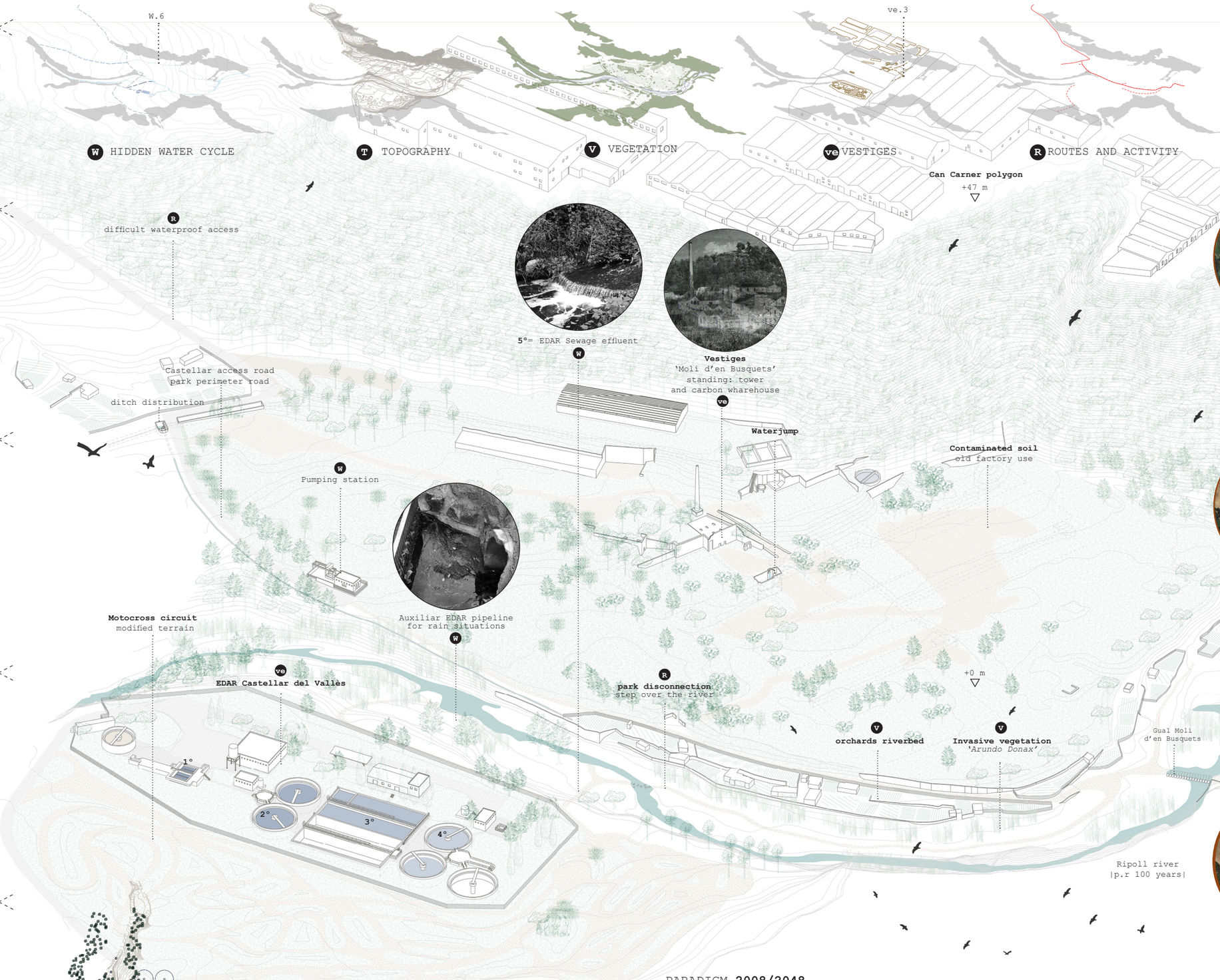
1 Third landscape

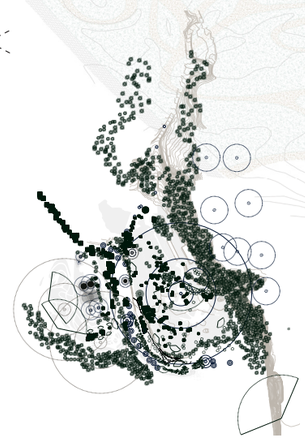
2 Carbon Warehouse vestiges

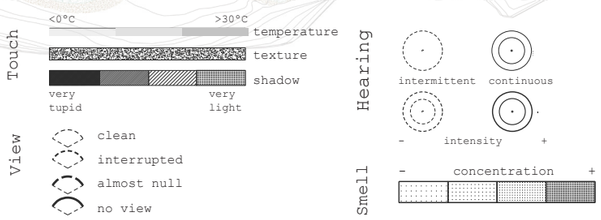
3 degraded riverbed

4 EDAR and motocross circuit

5 third landscape







PARADIGM_**2008/2048**

The **PDAR of Castellar del Vallés** is a paradigm for the design of these river restoration nodes. Using **sensory and analytic** reading of the **layers** that make up the space (water, topography, vegetation, vestiges and routes), the systems that compose its **latent metabolism** are rethought (purification, crops, restoration and drifts) in order to answer its incipient needs employing localized architectural interventions contextualized in each moment of time and subordinated to the **future of the natural environment**.

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SENSORY TOUR. **PROPOSAL**

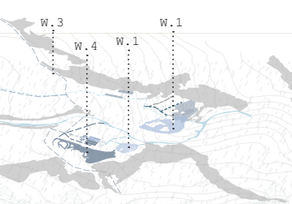
1 Clearing

2 Experimental carbon warehouse

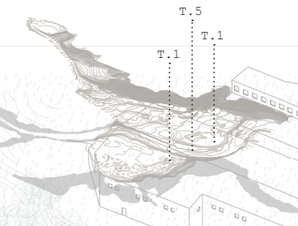
3 Gangway over the river

4 Rainfall lagoon

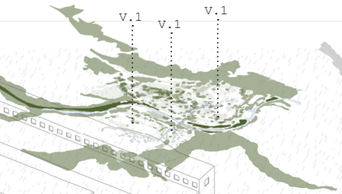
5 Tertiary lagoon viewpoint



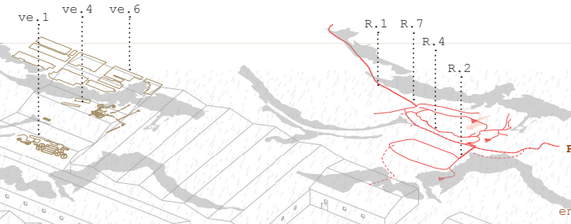
W VISIBLE WATER CYCLE



T TOPOGRAPHY

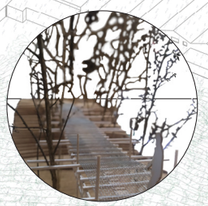


V VEGETATION



ve VESTIGES

R ROUTES AND ACTIVITY



DRIFTS system
Gangway over the river connecting both park areas:
EDAR and industrial vestiges.
Natural structure 'populus alba' and purification canal between tertiary lagoons 2nd phase treatment

RESTORATION system
Carbon warehouse vestiges and surroundings.
Tree nursery for riparian forest restoration + shade area.

DRIFTS system
bird's eye view
use of old underground galleries and raining infraestructure

W ve
Irrigation system and irrigation water purification

ve V W
CROPS system
Existing orchards relocation and rethinking an old deposit for new orchards

V R
Clearing
step through the third landscape
new mowing once a year

Castellar access road
park perimeter road
ditch distribution

north access

R
Logistical ways
farmers

R
Logistical ways
landscape restoration

W
Tributary river
natural filter

ve V R

V
Soil decontamination
old factory use

W V
Tertiary lacuna
3rd phase treatment 21000m³
'phragmite + lliri groc

R Ve

exit to the river

PURIFICATION system
Rainfall lagoon complementary to storm tanks_16500m³
Taking advantage of motocross circuit topography for lagoon formation

W
^ i ñ á ä á ~ ê b a ^ o ë á é É ä á á É
for rain situations
when rainfall lagoon has been filled

ve
EDAR Castellar del Vallès
new infrastructure-environment relationship

W
storm tanks
unused aerators_8000m³

5° EDAR Sewage effluent

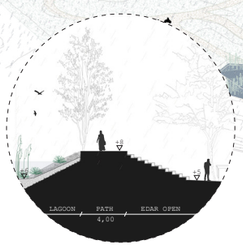
south access

W
River bed
natural purification
riparian forest restoration

Gual Moli d'en Busquets

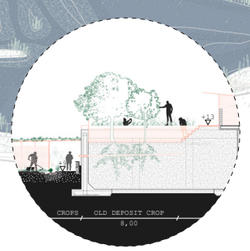
W
Tertiary lagoon
1st phase treatment

Ripoll river
|p.r 100 years|



S1

EDAR and rainfall lagoon relation.
New natural limit.
EDAR Workers + visitors | Aquatic fauna and purification flora

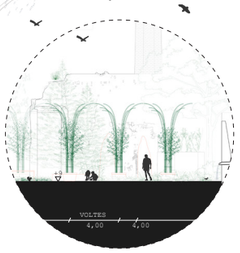


S2

Paths between crops.
Rethinking an old deposit for new orchards.
Farmers and students | Crop Fauna and flora

S3

Gangway connecting EDAR and industrial vestiges.
River restoration + time.
Visitors | Riparian flora and fauna



S4

Carbon warehouse vestiges and surroundings.
Tree nursery for riparian forest restoration + shade area.
Students + visitors | Terrestrial fauna and flora

S5

Tertiary lagoon viewpoint.
Taking advantage of existing underground galleries.
Visitors | Migration fauna migrant and purification flora.

SCALE

TIME **ACUPUNTURE** **INFRASTRUCTURE** **CONSOLIDATION** **CLIMAX**

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