

THE RIVEAL PROJECT

RIPARIAN FOREST VALUES AND ECOSYSTEM SERVICES



@R. Rivas | Lozinovska

PROJECT OVERVIEW

The RIVEAL project (PTDC/CTA-AMB/29790/2017) aims to map and quantify key ecosystem services of rivers and riparian forests and predict the balance of these services under diverse climatic, land use and water management scenarios in Portuguese fluvial landscapes. In particular, the case studies are regulated rivers downstream of dams, namely, Alva River downstream of Fronhas Dam, and Lima River downstream of Touvedo Dam.

TEAM

RIVEAL project results from a joint effort of ecologists, sociologists and modelers that constitute a transdisciplinary team focused on producing scientific knowledge to support efficient and defensible water and land management decisions. ISA (School of Agriculture – University of Lisbon) is the leader institution.



ECOSYSTEM SERVICES

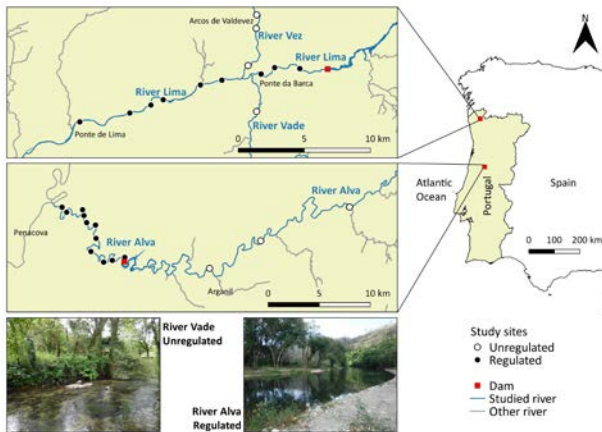
The project focuses in three Ecosystem Services and values:

- ▶ The **Value of Green** – evaluation of Carbon stocks and Carbon Sequestration of riparian forests
- ▶ The **Value of Diversity** – conceptualization of a trait-based ecological integrity framework of riparian and aquatic biota
- ▶ The **Value of Well-Being** – direct and indirect cultural services; perceptions of local populations



CASE STUDIES

Case studies are Portuguese regulated rivers (River Lima and River Alva) downstream of two dams with different operation rules: a run-of-river dam (Touvedo) and a reservoir dam (Fronhas).

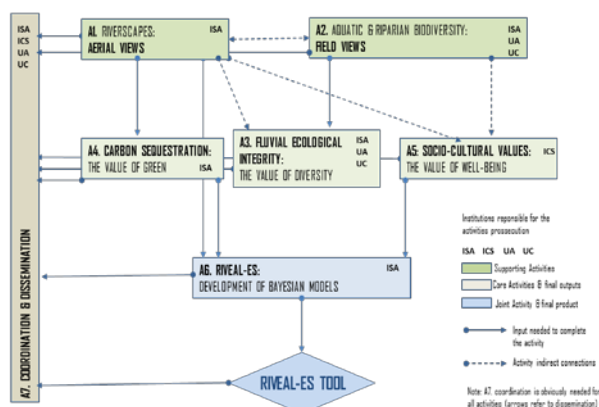


Sampling sites of the RIVEAL project in Lima and Alva Rivers (from Lozanovska et al., 2020; doi:10.1016/j.scitotenv.2020.141616).

ACTIVITIES

- A1.** Map and characterization of disturbed fluvial landscapes
- A2.** Obtaining data on species of fluvial biota (macrophytes, riparian woody vegetation, macroinvertebrates, diatoms, macroalgae and bryophytes)
- A3.** Conceptualization of the functional trait-based fluvial ecological integrity framework
- A4.** Forest carbon stock and sequestration evaluation of riparian zones
- A5.** River landscape value according with the perceptions of local populations
- A6.** Bayesian model development
- A7.** Project coordination and divulgation of research results.

RIVEAL ACTIVITIES WORKFLOW



Some biological elements considered in the RIVEAL project. Clockwise: macrophytes, macroinvertebrates, diatoms and macroalgae.



Some cultural ecosystem services of river landscapes considered in the RIVEAL project: recreation, aesthetic values.

RESULTS AND OUTREACH

The RIVEAL project has a strong component of results dissemination and outreach by:

- Deliverables
- Communications
- Publications
- Factsheets
- Science briefs
- Website

The main mean of dissemination is the project website (www.riveal.pt) where latest news will provide information about the working progress of the project. Research Gate Project log is also an option to follow RIVEAL (<https://www.researchgate.net/project/RIVEAL-Riparian-forest-Values-and-Ecosystem-services-in-uncertain-freshwater-futures-and-Altered-Landscapes>).

TOOLS

It is planned the:

- update of FLOWBASE, a riparian traitbase (<http://www.isa.ulisboa.pt/proj/flowbase/>)
- development of RIVER-ES: Model development of ES using Bayesian Networks and Belief Networks

