



FORESTERRA

Enhancing Forest RESearch in the MediTERRanean
through improved coordination and integration



CSIC-CEBAS

Department of Soil and Water Conservation and Organic Waste Management

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CSIC-CEBAS is a multidisciplinary institute working on three areas

Researchers 62, Technicians 47, Administration 17, Non-permanent 110. Total > 300

2008-2012 → ~ 700 papers SCI

2008-2012 → Competitive projects > 16 M€; transference projects ~ 5 M€

Organization

Area → Departments

Natural resources → Water and Soil Conservation and Organic Wastes

Food technology → Food Technology

Agrarian sciences → Irrigation, Plant Nutrition, Stress and Pathology, Plant Breeding

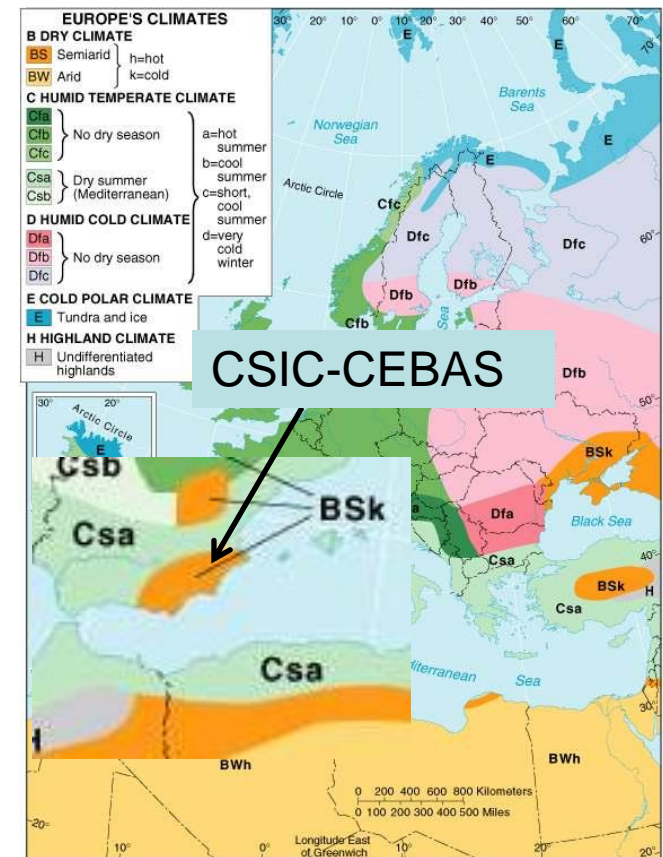
Directly involved on forest research, some cooperation/ activity, potential for cooperation

10% of the workforce involved in forest related research, 10% loosely related

General objective (Strategic Plan 2014-2017, final draft)

“To generate basic and applied knowledge for the sustainability of the **resources** existing in **fragile** zones, especially **soil, water and vegetation**: (i) ... and (ii) **sustainable** scenarios for **management** of agricultural and **natural ecosystems** under **global change** impacts”.

Although CSIC-CEBAS is not a pure Forest Research Centre it has a **singular** niche on **semiarid** ecosystems.



Priority research areas (forest related)

ANALYSIS OF THE IMPACTS OF GLOBAL CHANGE ON SOIL, WATER AND VEGETATION RESOURCES FOR THE SUSTAINABLE MANAGEMENT OF SEMIARID ECOSYSTEMS

Processes of land degradation, restoration and identification of sustainable scenarios

Hydrologic and sediment dynamics of fluvial systems to changes and disturbances in the watershed, impact on ecosystem services

Soil carbon stocks, land use and management and the erosive cycle

New methods of forest restoration combining complementary functional types

Restoring vegetation cover for long-term improvement of water cycle, soil fertility and biodiversity and prevention of land degradation.

Main Projects (1)

Originally (1990-2000) → *Land degradation/soil erosion, use of organic refuse and mycorrhizae on reforestation of semiarid lands.*

2000-2010

Global impact of Forest-Hydrological Restoration projects (classical approach on Spain, trees + checkdams)

Long-term success of reforestation on semiarid landscapes → INTERREG

Hydrological and geomorphological impacts of checkdams → INTERREG, Public Foundation, National Plan R+D

Combined effect of checkdams, reforestation and land use change on fluvial sediment dynamics and fluvial geomorphology at the catchment scale → Public Foundation, National Plan R+D

Main Projects (2)

Evolution of reforested ecosystems on semiarid climate

Soil evolution → RECONDES EU FP

Pine litter and vegetal succession → RECONDES EU FP

Thinning of afforested stands and impacts on tree ecophysiology using stable isotopes
→ National Plan R+D

New techniques for reforestation of degraded ecosystems under semiarid climate

Spatial short-circuit of connectivity of water and sediment flows → RECONDES EU FP

Microhabitat effects and direct seeding on steppes → RECONDES EU FP, National Plan R+D

Combination of plant species with complementary water use strategies → National Plan R+D

Enrichment planting of reforestation understory with shrubs → National Plan R+D

Main Projects (3)

2007-2013

C stocks, reforestation, succession and erosion/sedimentation dynamics

Effect of reforestation and natural recovery on C stocks → National and Regional Plans
R+D

Erosion/sedimentation processes at catchment scale and checkdams on net C sequestration → National and Regional Plans R+D

Intermittency of semiarid rivers on forest landscapes

Intermittency of semiarid rivers on forest landscapes → MIRAGE EU FP

Effects of checkdams on intermittency → MIRAGE EU FP

Main Projects (4)

2007-2013

Tools and methods for and results of large scale studies of water balance

Real time high resolution precipitation estimates with weather radar + rain gauges →

TempQSim EU FP, REDSIM DG Environment EU

Estimation of soil hydrological parameters at regional scale → REDSIM DG

Environment EU

Long-term high spatial and temporal estimation of water balance on Segura catchment headwaters (impact of forest and reforestation) → Regional Plan R+D

Plant breeding projects

Genomics and molecular markers on Argan → Spain International Cooperation

Biosafety of forest transgenic trees → COST Action

Future perspectives in the forest research domain

Implementing and reinforcing synergies with other non-forest groups (ecophysiology, pathology, plant breeding)

Increasing effort to work at the whole Segura catchment scale (19000 km²).

Reinforcing the study of water related services especially in the headwaters.

Long-term forest management of reforestations for increasing water-yield and preserving biodiversity.

Participatory approach for testing management and active transfer of knowledge

Impact of global change on ecosystems services (water availability, carbon sequestration, erosion control)



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Research infrastructures (1)

Large lab services:

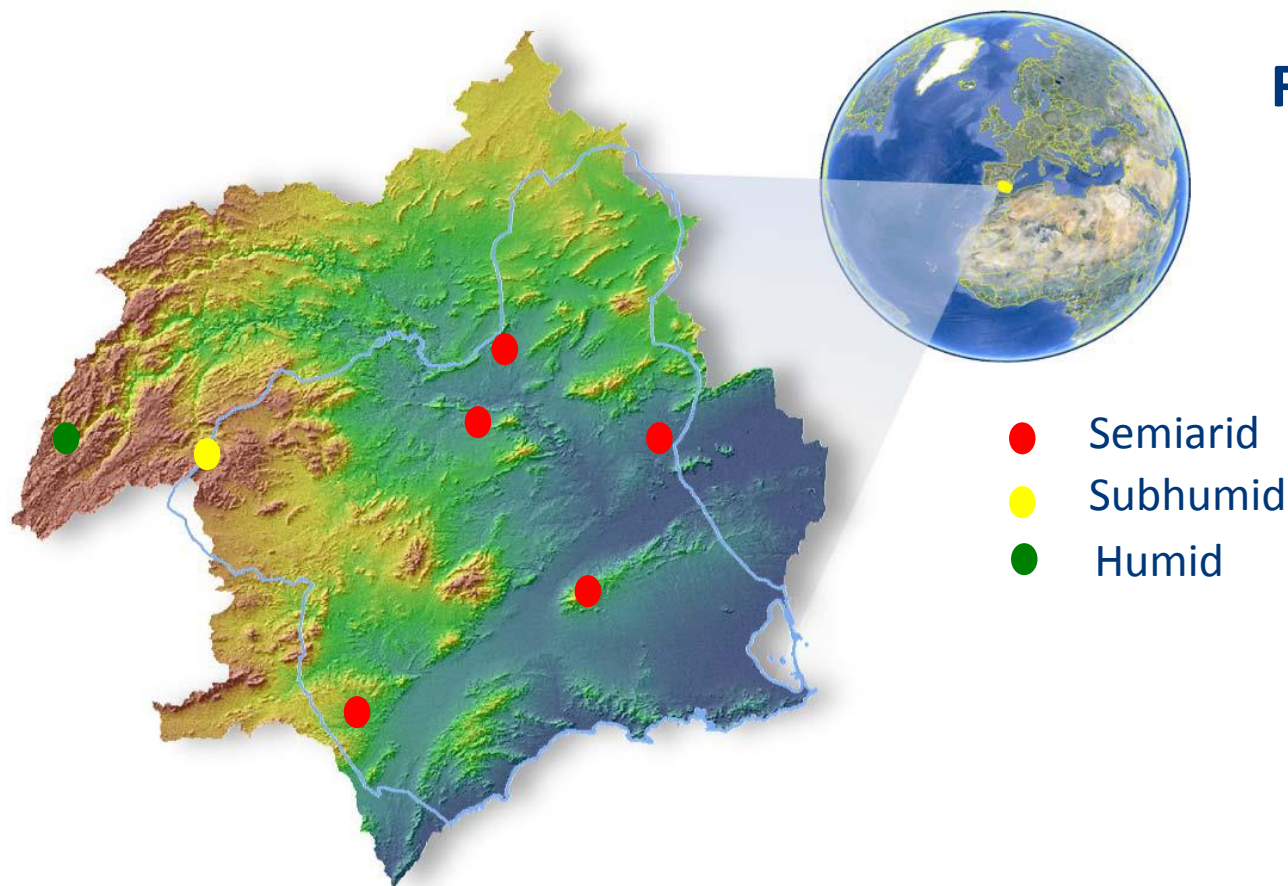
Ionomics Service

Metabolomics Service

Databases

Large collection of GIS data on SE Spain

Research infrastructures (3)





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Research Infrastructures (4)

Policy of access and experience of transnational access

At the present scientific equipment policy of access is simply internal/external (internal = higher priority and lower cost). Special conditions may be negotiated and also Transnational Research Units may get internal conditions.

There is no policy for database and field site access.

There is quite a lot experience on external services, but not as transnational access



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Transnational collaboration (1)

At the present the institute is not on any network

There are direct collaborations with several universities and research centres not forest research focused

The direct output is the participation in EU research projects.

The institute staff is involved in the writing of a scientific bilateral programme of forest research Spain-Morocco



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Transnational collaboration (2)

The institute is favourable to the idea **Transnational Joint Research Units**. We consider that our location in a semiarid area is a plus for building a comprehensive network. Additionally, equipment and synergies in the Institute may support innovative and complementary research.

Positive points: integrating research across ecosystems and across subdisciplines, efficient use of infrastructures, cutting-edge research

Drawbacks: administrative issues on the head institution (CSIC), good 'paper' joint unit not real joint research, extra effort for coordination, unbalanced roles.