Actions to improve *Salix alba* and *Populus alba* galleries (92A0) in two Natura 2000 areas, Greece

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N
W
E
S
0 25 50 100 150 200
Kilometers

Main threats in the past:

Land reclamation for agriculture

Clearings to plant fast-growing hybrid poplar plantations

Works to protect from floods: river embankments and canalization

Construction of roads along rivers, lakes and deltas

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Shrinkage of surface area throughout Greece

Habitat degradation

Main threats today:

Changes in water level and flooding regime

Gravel and sand extractions

Illegal logging

Habitat degradation


Land reclamation
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Kilometers

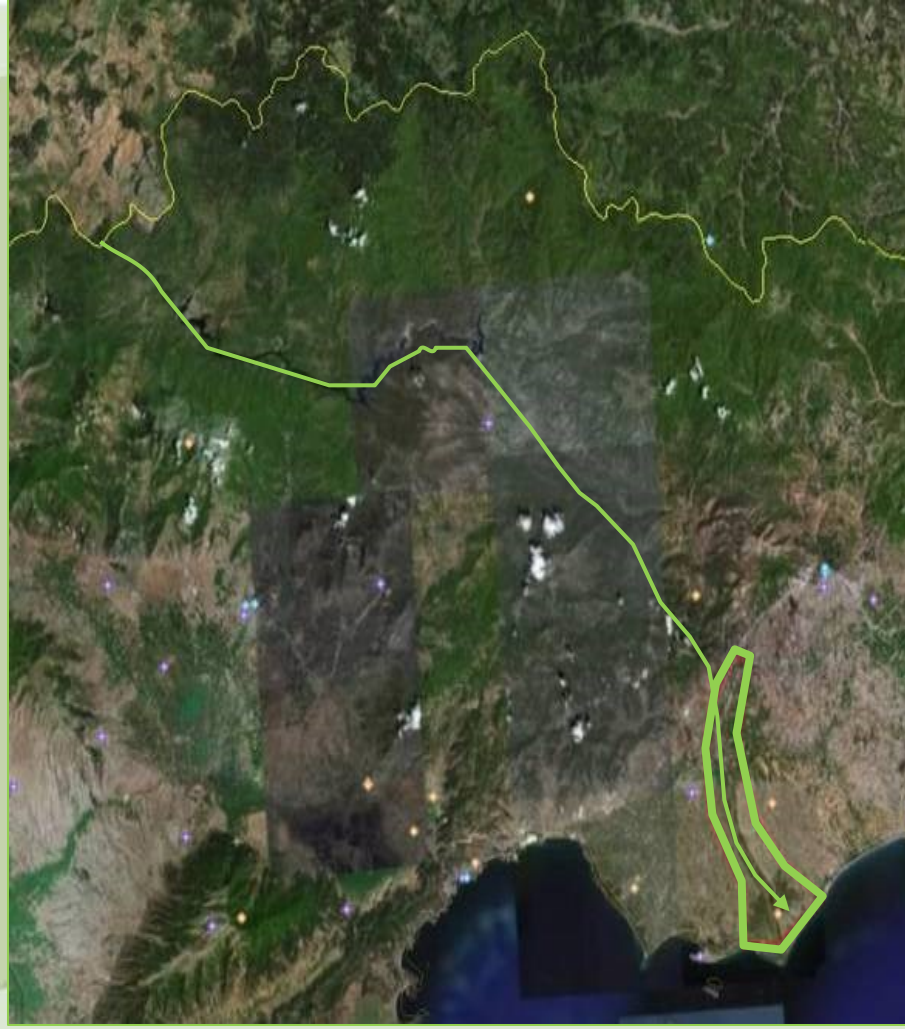
Riparian forest of Nestos Delta

Nowadays, a remnant of a much expanded riparian forest that covered ~ 10,000 ha.

Land reclamation, clearings for poplar plantation, river diversion and canalisation from the 20s' to 50's, led to drastic shrinkage.

Only 155 ha of the original forest remained and much of it in patches.

Within the new river bank, 1,700 ha of riparian forest developed in time.



Early stages

Since 1990, nature conservation efforts focused on two aspects:

Forest restoration

Regulation of activities

•1990. Poplar plantations ceased.

•1996. Permissions for agricultural use of some areas between the dykes were recalled. The area is characterized as a National Park, is proposed as SCI and is designated as an SPA.

1998. The first management plan.

•2000-2004. First restoration plantings implemented by the Forest Service with native species and small scale improvement of water conditions of the forest. First operation of a visitor centre nearby.

The recent efforts

2005-2008. The **Forest Service of Kavala** and the Greek Biotope - Wetland Centre joint forces to restore part of the forest with funds from the European Economic Area Grants and the Greek Investment Program.

Two main issues in relation to habitat conservation status:

- Small surface area in patches
- Forest affected by altered hydrological regime

- Natural fertilisation of the soil stopped and water table dropped as a result of upstream dams, river channelling and the cease of periodical flooding.

Key considerations for restoration

We cannot re-create the original forest

A step - by - step strategy ⇒ restoration of native vegetation ⇒ connection of dried up river courses ⇒ controlled flooding of the forest

We can restore some of its structural elements and facilitate main processes

We need to enhance connectivity among forest patches

We have to rank the most favourable areas, in terms of soil conditions and water table, according to species ecological requirements

What was delivered

- A new forest management plan with primary objectives:

  - improvement of conservation status - enhancement of recreation services to visitors

- 290 ha of riparian forest have been restored; a valuable surface.

- Recreation facilities have been constructed - recreation and education value have been raised
  - sponsors have contributed (OPAP S.A.)

local agreements for operation.

Key elements for success

A vision for the area

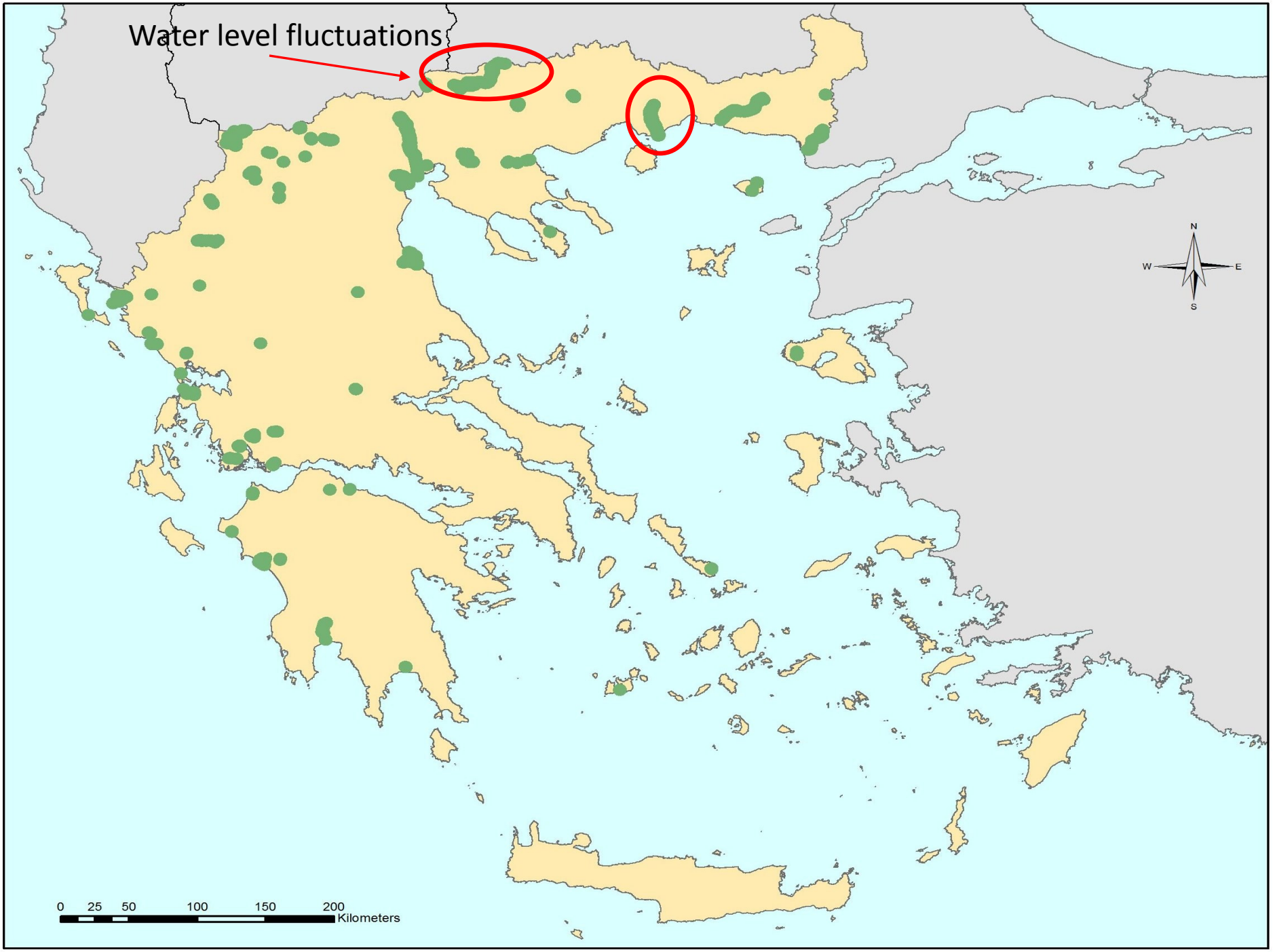
A committed management authority backed up with expertise and experience

Persistence in conservation through time

Multi-sectorial, integrated approach and long - term efforts required in order to restore key ecological processes

Low maintenance needs after interventions

Seek for: resources to maintain momentum
local solutions to operation of recreation facilities


Water level fluctuations
N
W
E
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0 25 50 100 150 200
Kilometers


Strymonas River
Lake Kerkini
Belitsa
Ag. Ioannis
Strymonas River
Agitis River
Strymonikos Gulf

The problem:

Two conflicting sectors: agriculture and nature conservation

Abrupt and extreme raise of water level in spring in the past 30 years

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Shrinkage of riparian forest from 670 ha to ~ 200 ha

Degradation of structure – open patches, low regeneration

Our approach:

We built on scientific knowledge gained over years of research and monitoring

We wanted to show that water management for the benefit of both the ecosystem and agriculture was possible

We collaborated with the water managers for agriculture, **Directorate of Land Reclamation of Serres** – partners at early stages of planning and during implementation, using LIFE Programme funds (LIFE03 ENV/GR/000217)

Up-to-date tools (modeling tools and satellite image analysis) were applied to calculate and allocate irrigation water - The Land Reclamation Service installed equipment and software to use it for efficient water allocation in agriculture

Management choice:

Two plans to re-arrange agricultural practices

20% less water need for agriculture

Effective water allocation in irrigation networks

Difficulties:

Re-organization of public sector – centralized administration

Need for maintenance of infrastructure – reduced resources

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Loss of momentum

Lessons learned-challenges:

A decisive sectoral authority, properly equipped, with trained and activated personnel

Continuous collaboration between stakeholders

Multi-sectorial approach and long - term efforts required in order to address threats from uses

Thank you

What we did:

Modeling tools and satellite image analysis

- Calculated water quantity in the catchment in space and time
- Identified crops and calculated irrigation needs
- Estimated cost associated with water services
- Proposed alternative plans to re-arrange local agricultural patterns and reduce the use of irrigation water and agrochemicals

- Stakeholder Analysis
- Farm management survey at catchment scale (250 farms)

And then:

- Optimized irrigation water management through modeling
- Consulted with farmers and finally concluded with 2 plans for agriculture

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20% less water need for agriculture, effective water allocation in irrigation networks

- Installed the hydraulic modeling tool in the Land Reclamation Service to use it overtime