ECOLOGICAL RESTORATION MODELS IN DEGRADED MANGROVES FOREST IN COSTA RICA

Technology transfer

salinity, hydroperiod, nutrients, redox potential and pH interstitial water, microtopography, sedimentation rate

Control factors → *Reflecting* → Habitat structure (biodiversity, structure, species composition) → Habitat process → Habitat function → *Expressed* → Ecosystem services

Primary and secondary productivity

2009

Stress

Mexico

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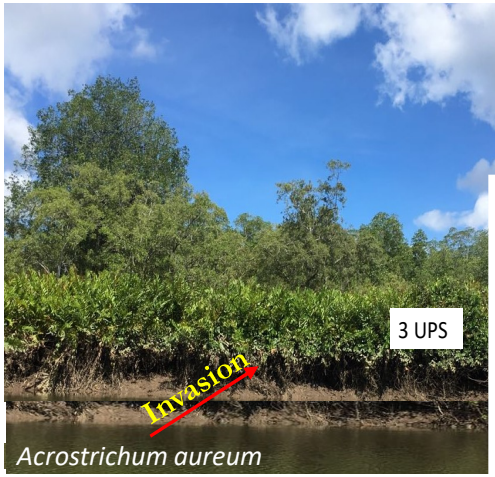
Global pressures on mangroves and their communities: solutions from conservation, restoration and governance

Terraba Sierpe wetlands

1 ENVIRONMENTAL DIAGNOSTIC



Comparison with a reference forest

Species	Min	Max
Rhizophora sp.	3.8 ↓	7.7 ↓
Acrostrichum aureum	27.2	57.1

Intolerant intervals: Salinity (increase), temperature (decrease), hydroperiod (increase flooding), topography level (decrease).

Hydrological change and low water quality

2 Total *Acrostichum aureum* removal

3 Hydrological rehabilitation = Increased flood frequency

4,200 m^3 excavated sediment and 1,400 m_construction channels

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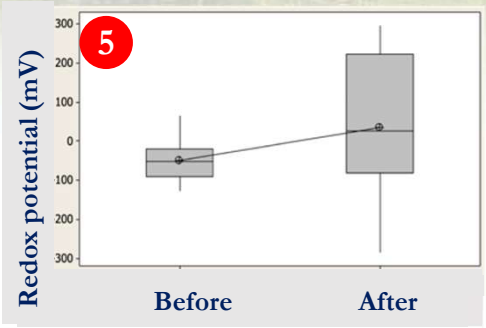
Monitoring

4 Inhibition of spores germination and *Acrostichum aureum* growth

Plastics lines: 2 m wide by 40 m long

5



One-way ANOVA´s
$F_{1,46} = 4.8$, $p \leq 0.033$

Reforestation:
select species and exact time to do it

Growth rate
0.09 +/- 0.02 **cm day $^{-1}$**

Pelliciera rhizophoracea and Rhizophora mangle (100,370 propagules)

6

Key: changes in hydrological behavior, topographic level and interstitial water chemistry

High density in the resforestation

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THANK YOU FOR YOUR ATTENTION

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