Let's Put Microbes in Our Restoration Plans

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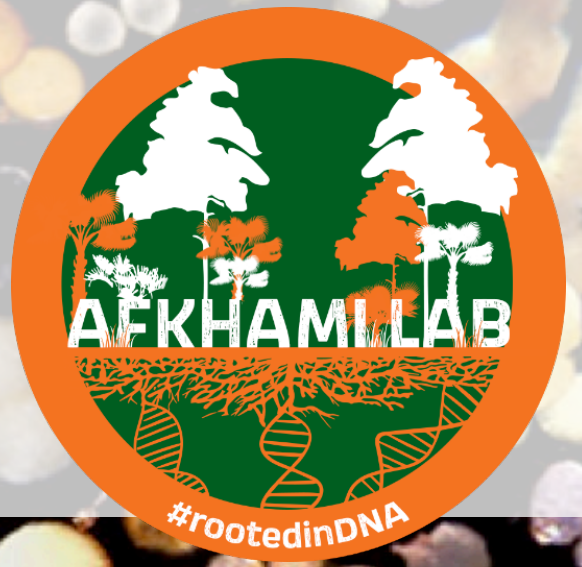


Some microbes cause disease, BUT ...

New York Post

… but microbes can also be hugely beneficial.

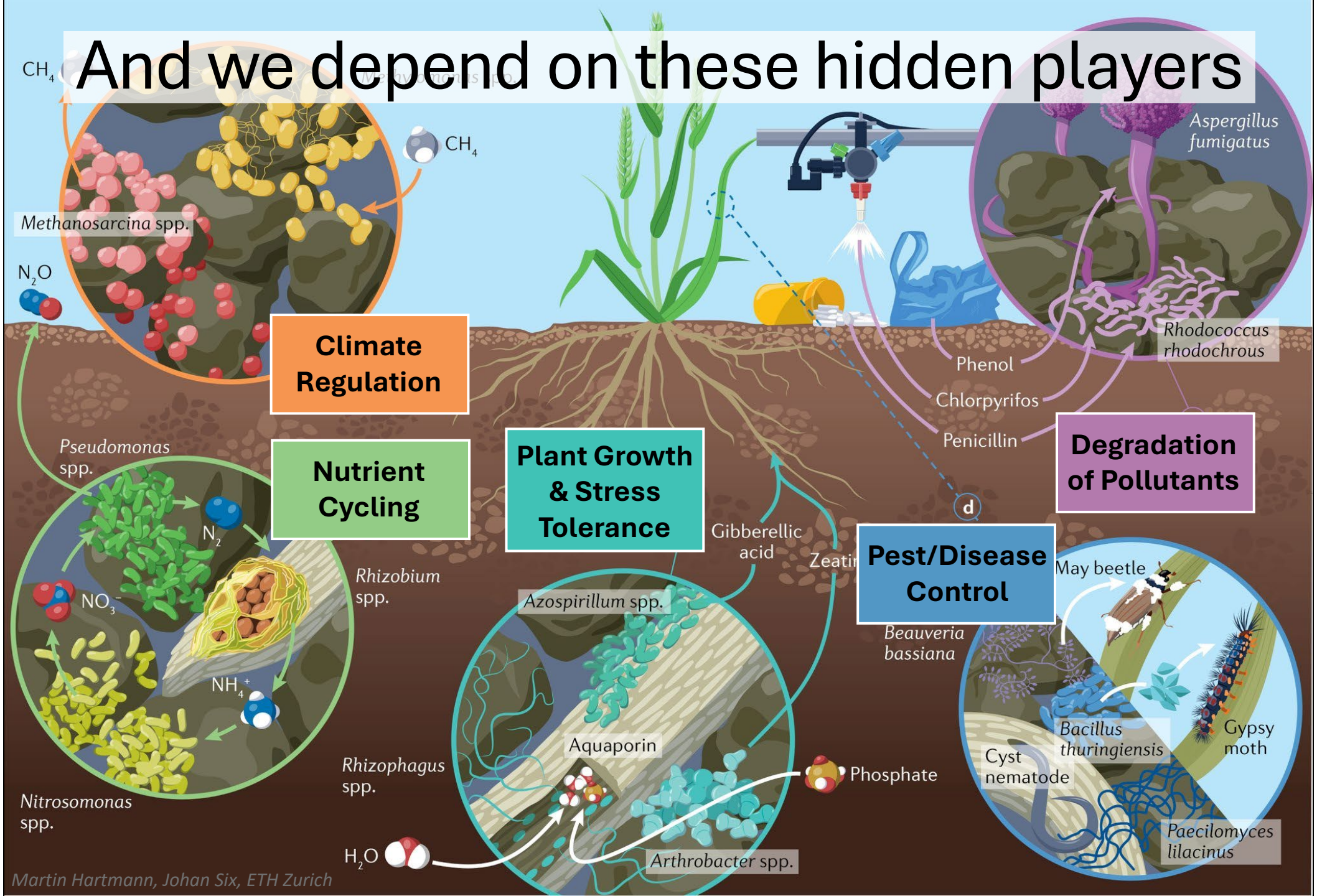
We are living in a microbial world

5,000,000,000,000,000,000,000,000,000,000

1 billion to 3 trillion microbes per spoonful

Microbes are everywhere

And we depend on these hidden players

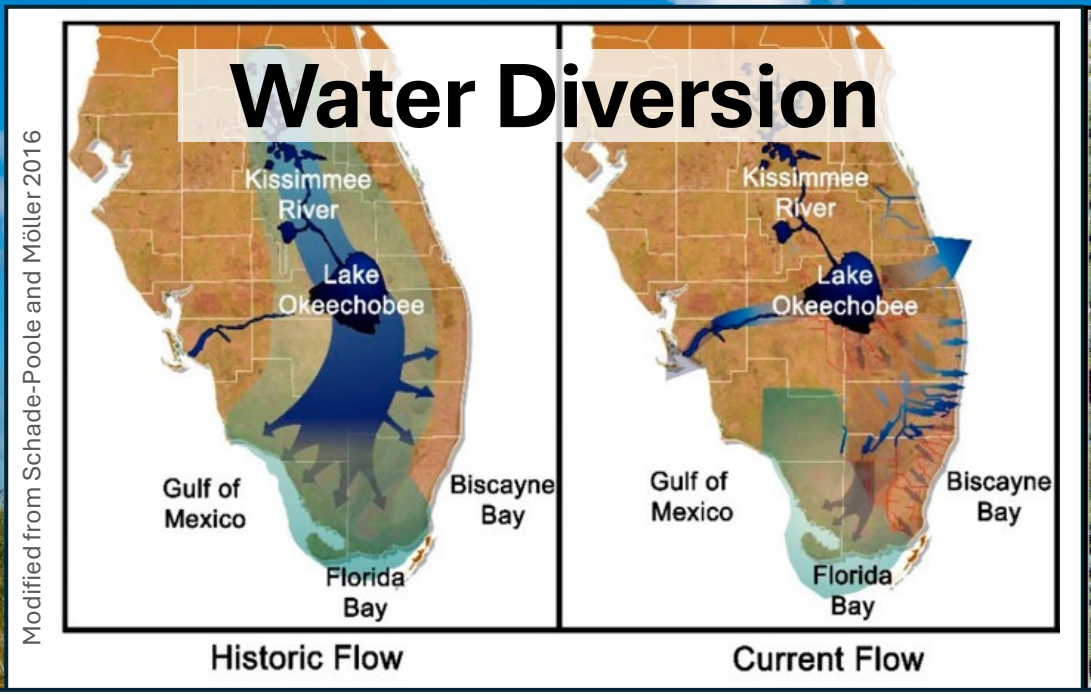


The world is getting more STRESSFUL

Clearwater Florida After Hurricane Milton (Image from Associated Press)

Image from Florida Museum

Water Diversion



Pollution

The Everglades Is Facing STRESSFUL Changes

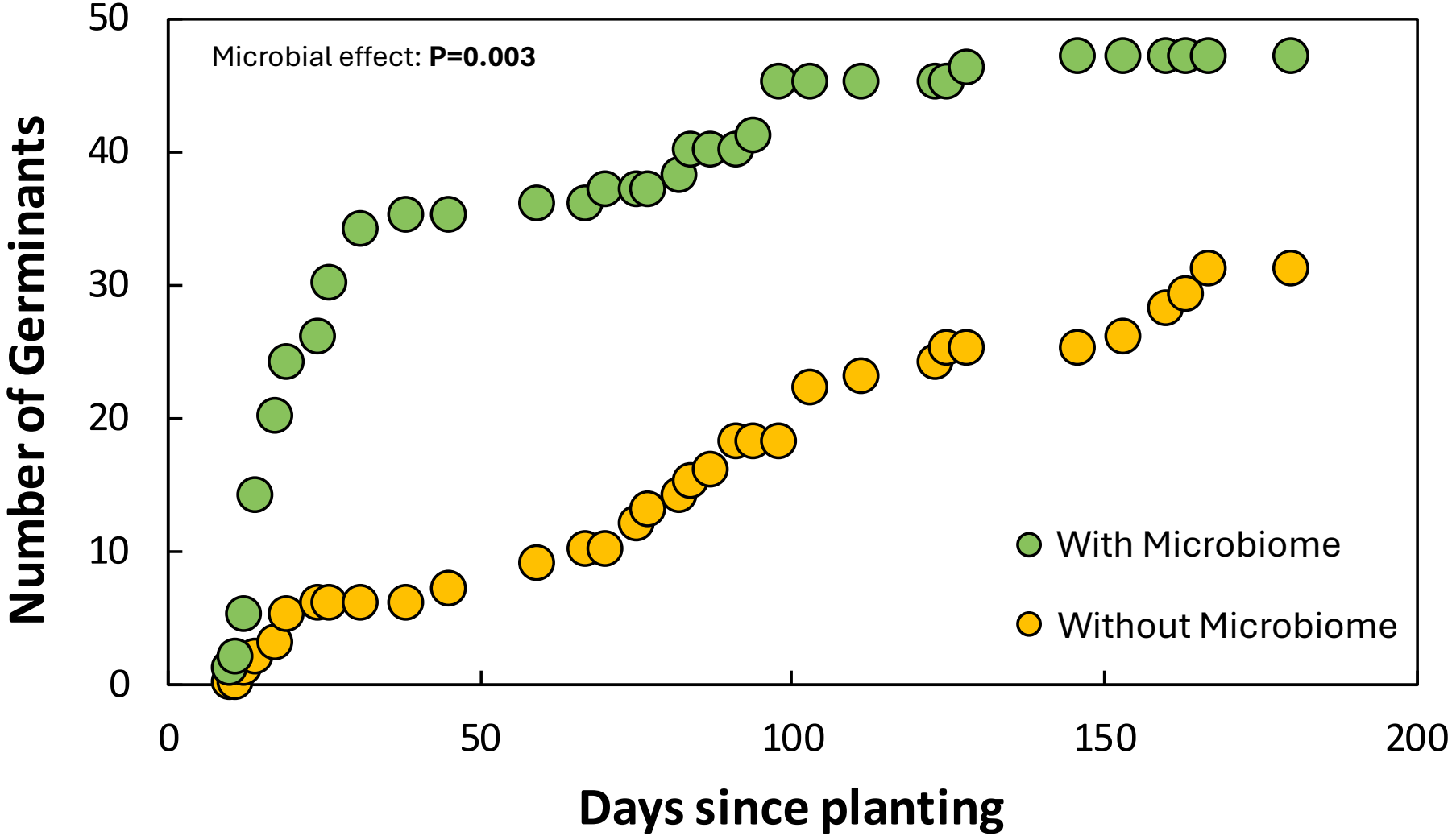
Sea-Level Rise

Invasive Species

Tree Islands are Ecosystem Function Hotspots

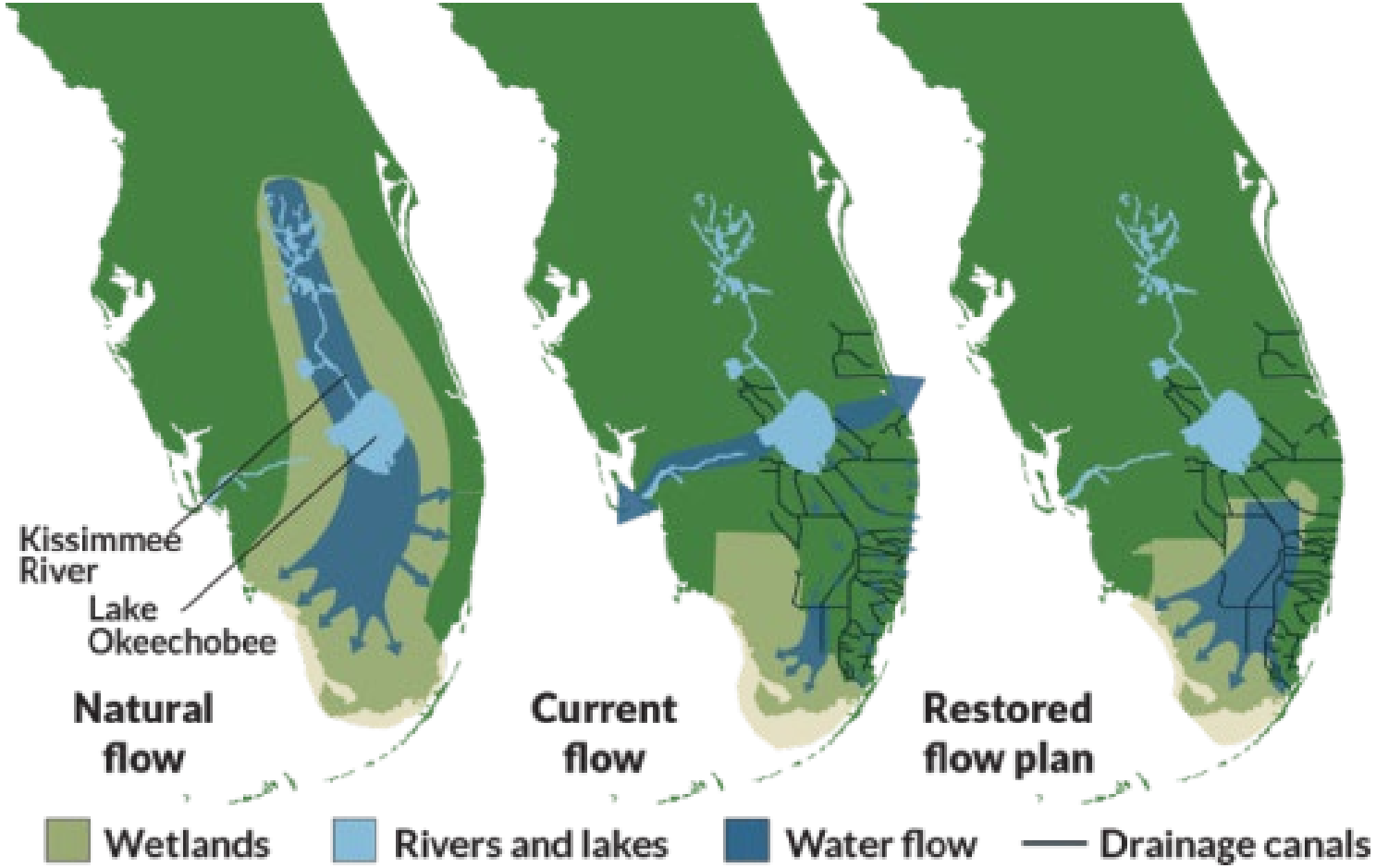
(Sklar & van der Valk 2002; Wetzel et al. 2005 & 2017)

Microbiomes on tree islands in the Everglades can increase tree germination and growth



Almeida *et al* 2023, *Restoration Ecology*

Microbiomes enhancement of tree growth depend on water level



Almeida *et al* 2023, *Restoration Ecology,* Kiesewetter *et al* 2025, *Ecological Applications*

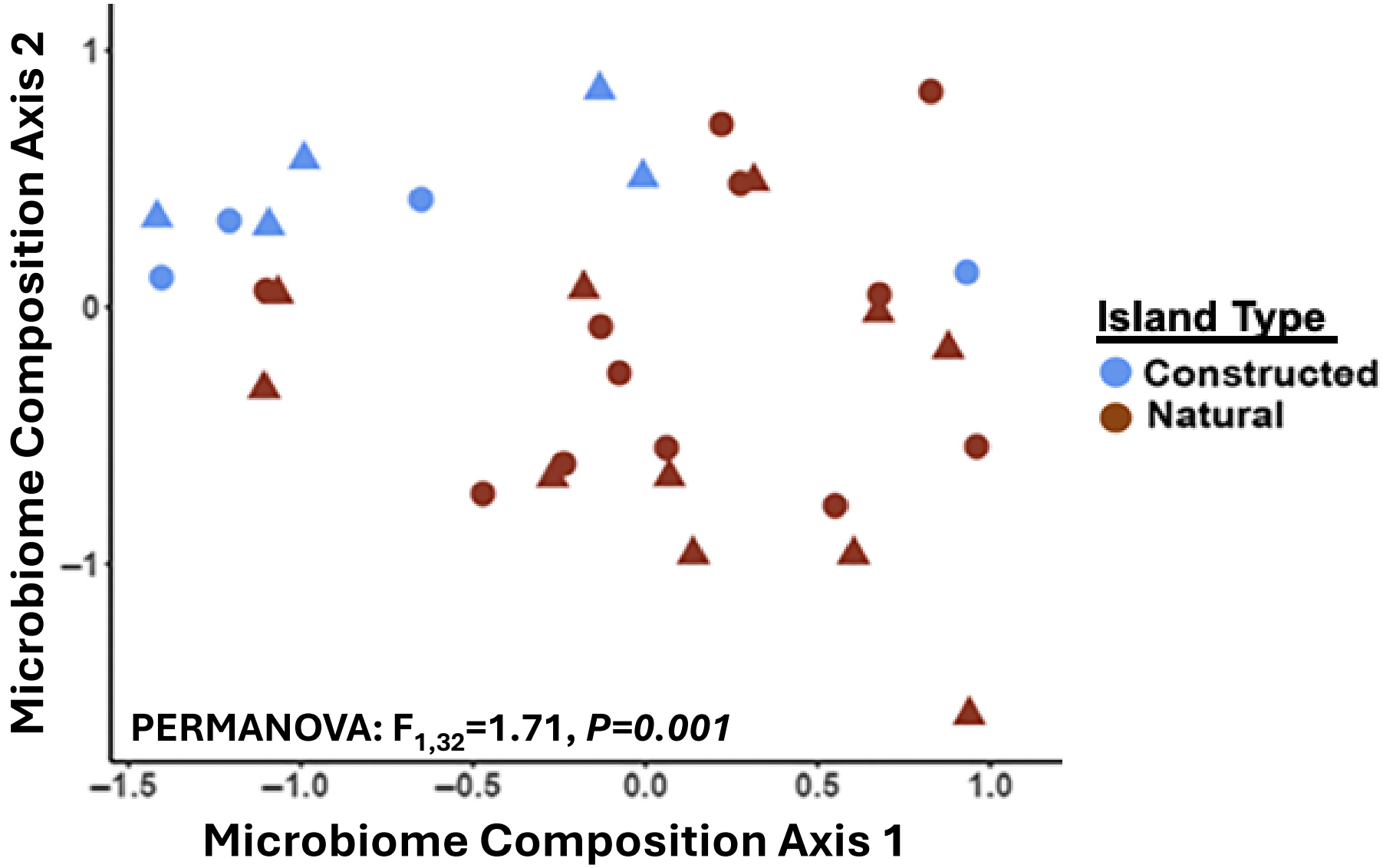
Loxahatchee Impoundment Landscape Assessment (LILA)

Limestone Core Tree Island

Peat Core Tree Island

The LILA Tree Islands Before and After

Microbiomes differ between natural and human-constructed tree islands even ~20 years after restoration



In a stressful world, microbes are important for healthy, resilient environments …

In a stressful world, microbes are important for healthy, resilient environments …

So let's put microbiomes in our future restoration plans.