

Plant-Nutrient Interactions in a Neotropical Ombrotrophic Peatland

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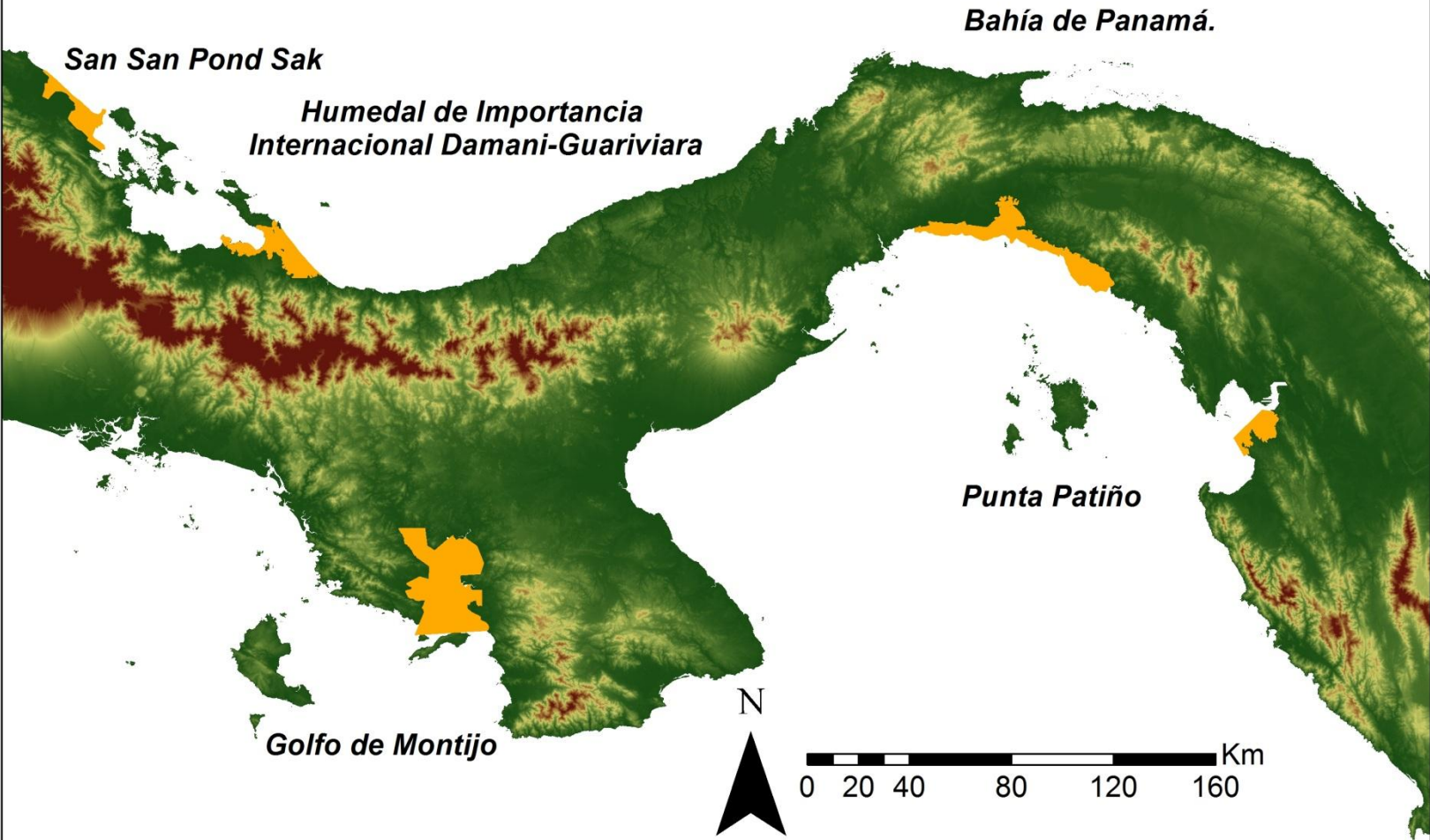
Smithsonian Tropical Research Institute



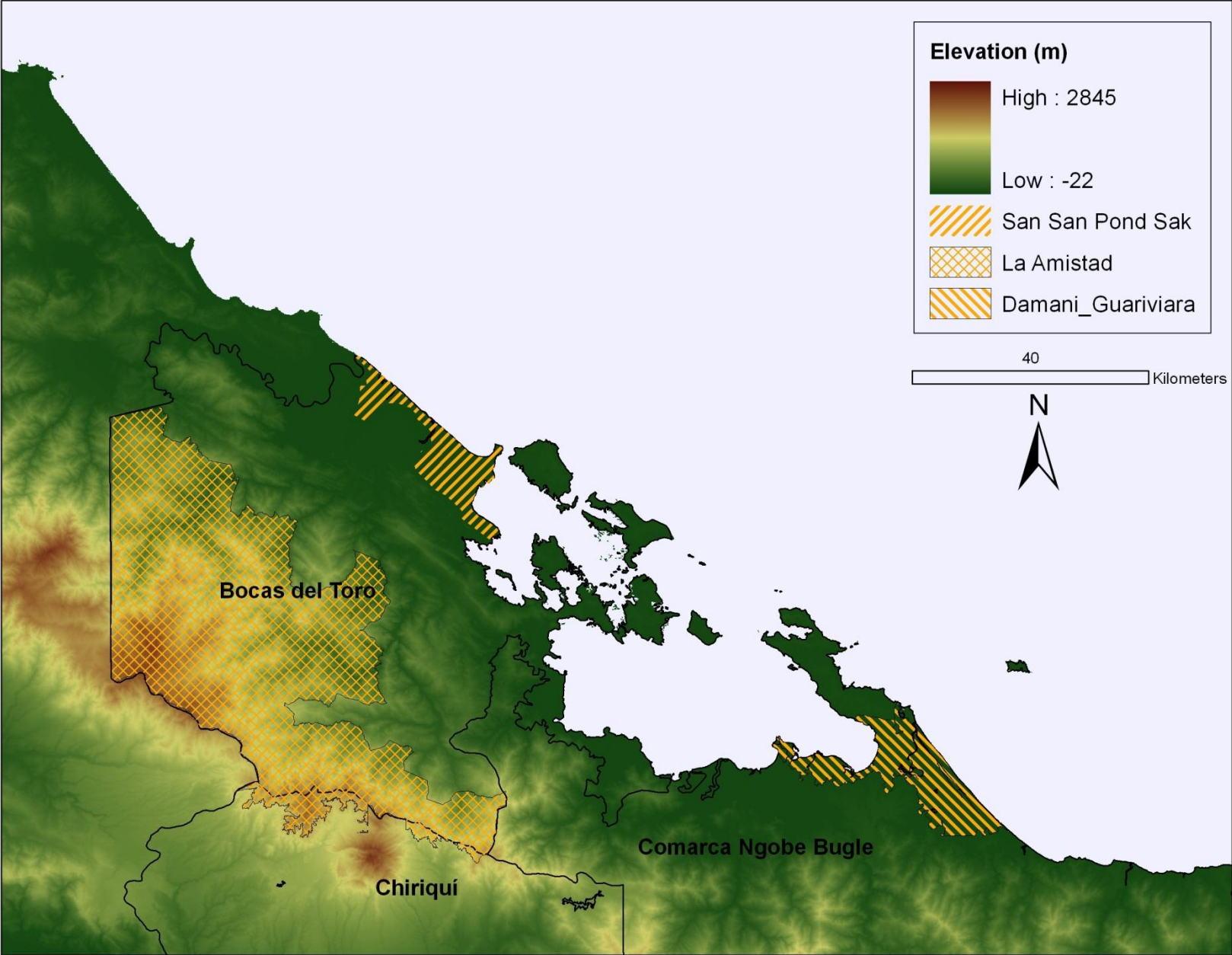
www.stri.si.edu/sites/soil/wetland_group

Panamanian Wetlands

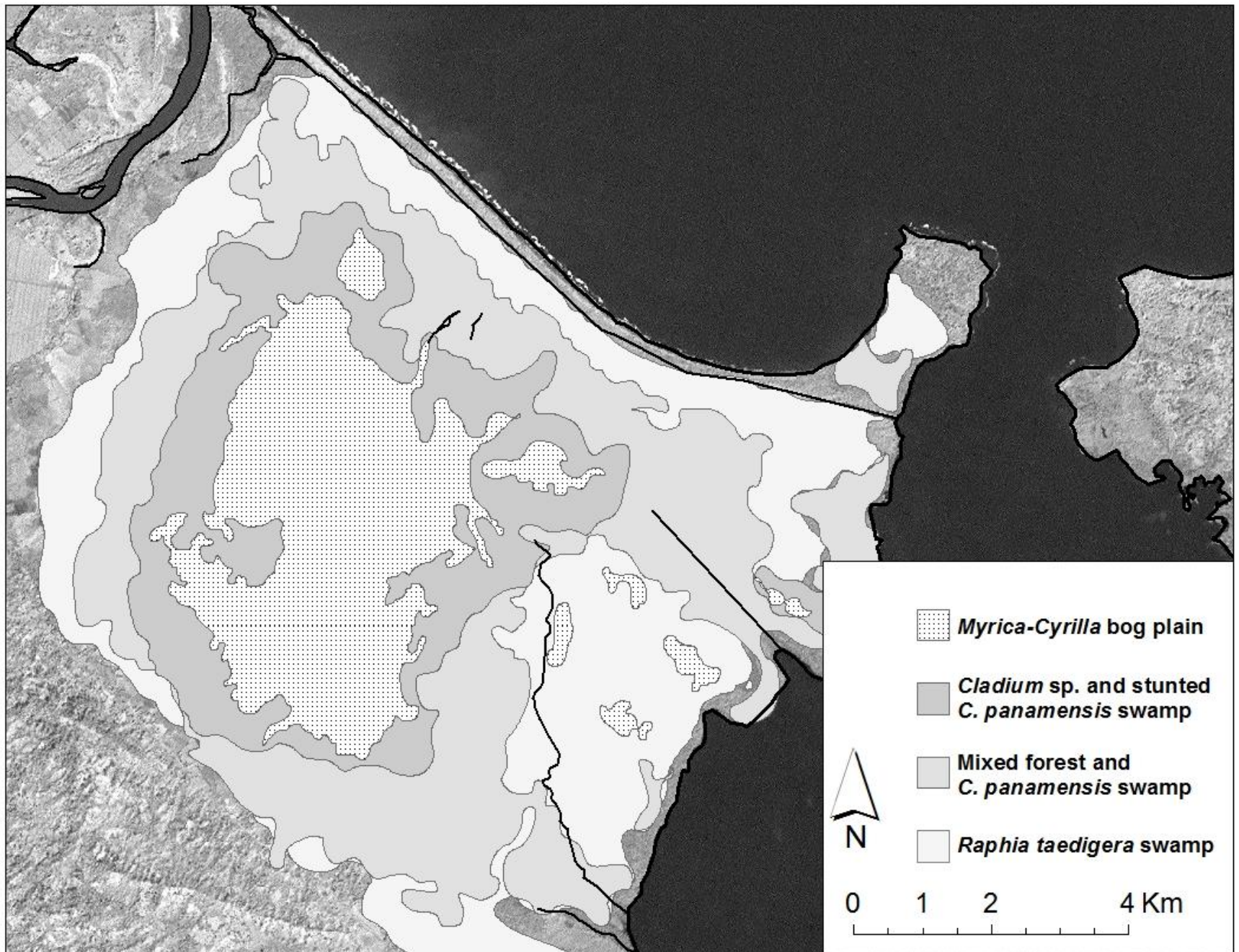
Ramsar wetlands of Panama



San San Pond Sak







Phillips S, et al. 1997 Paleogeography, Paleoclimatology, Paleoecology 128: 301-338

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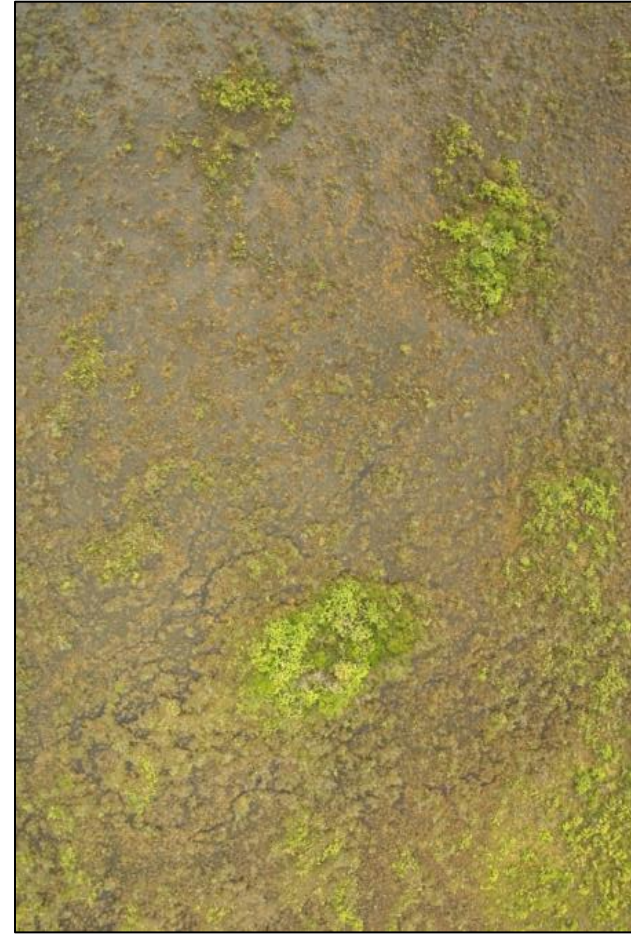
Raphia taedigera
palm swamp



Mixed forest swamp

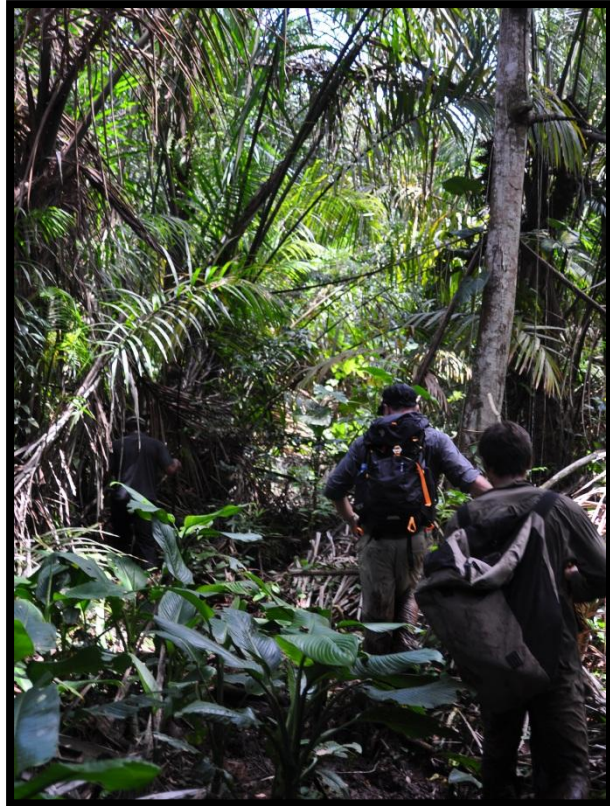


Myrica-Cyrilla bog plain



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Raphia taedigera
palm swamp



Mixed forest swamp



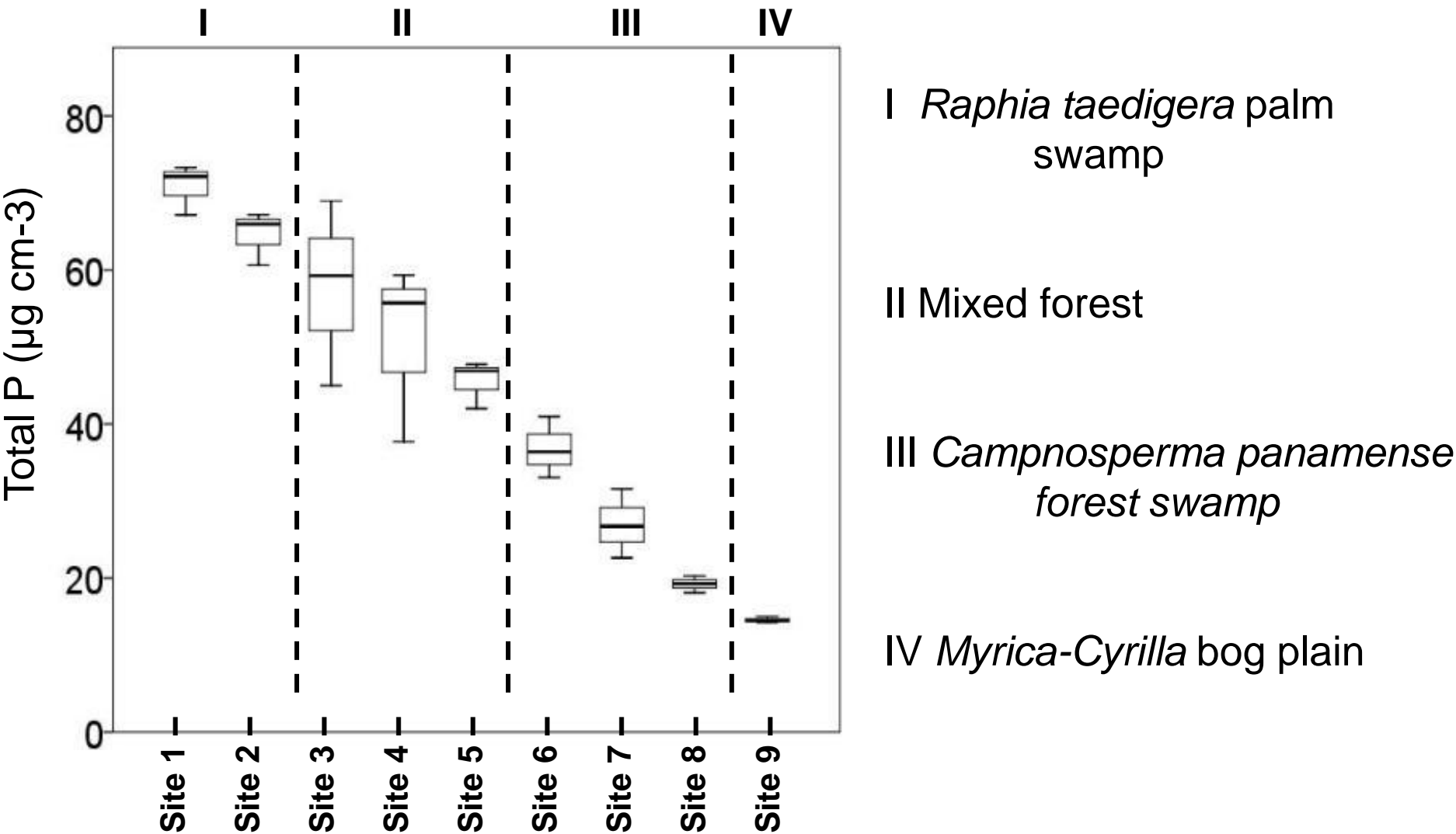
Myrica-Cyrilla bog plain



Troxler TG. 2007. Journal Of Tropical Ecology 23: 683-691

Sjögersten S., A. W. Cheesman, O. Lopez, and B. L. Turner. 2011. Biogeochemistry 104:147–163.

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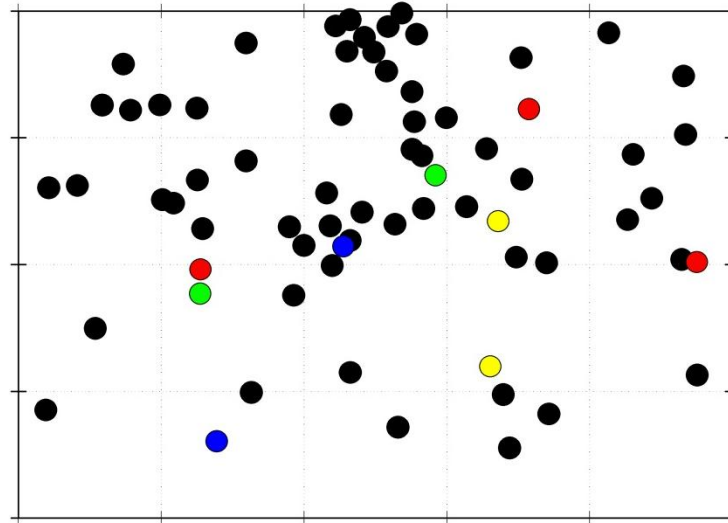


Cheesman, A. W., B. L. Turner, and K. R. Reddy. (2012). Soil Science Society of America Journal (in press)

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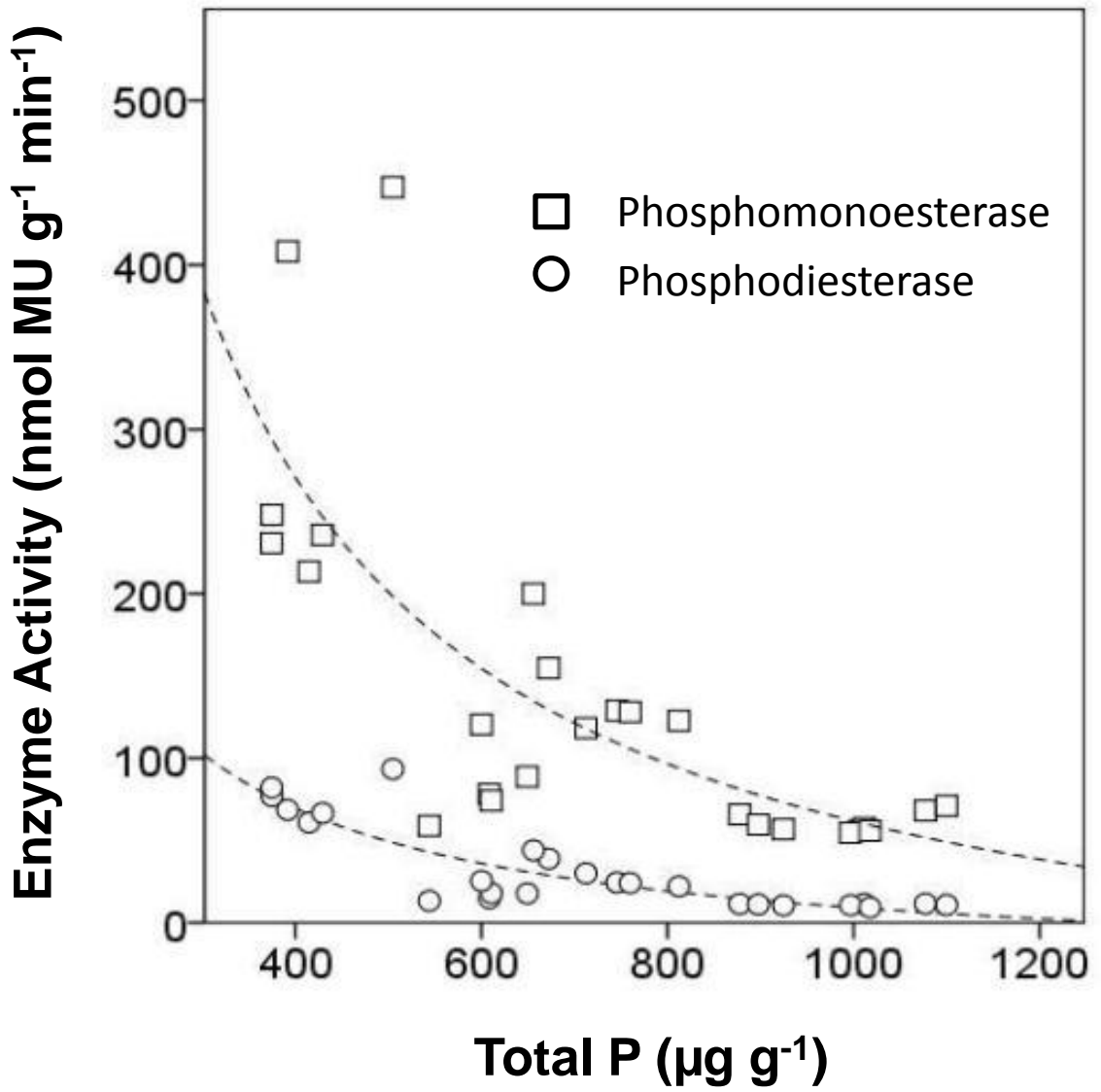


Raphia taedigera dominated site

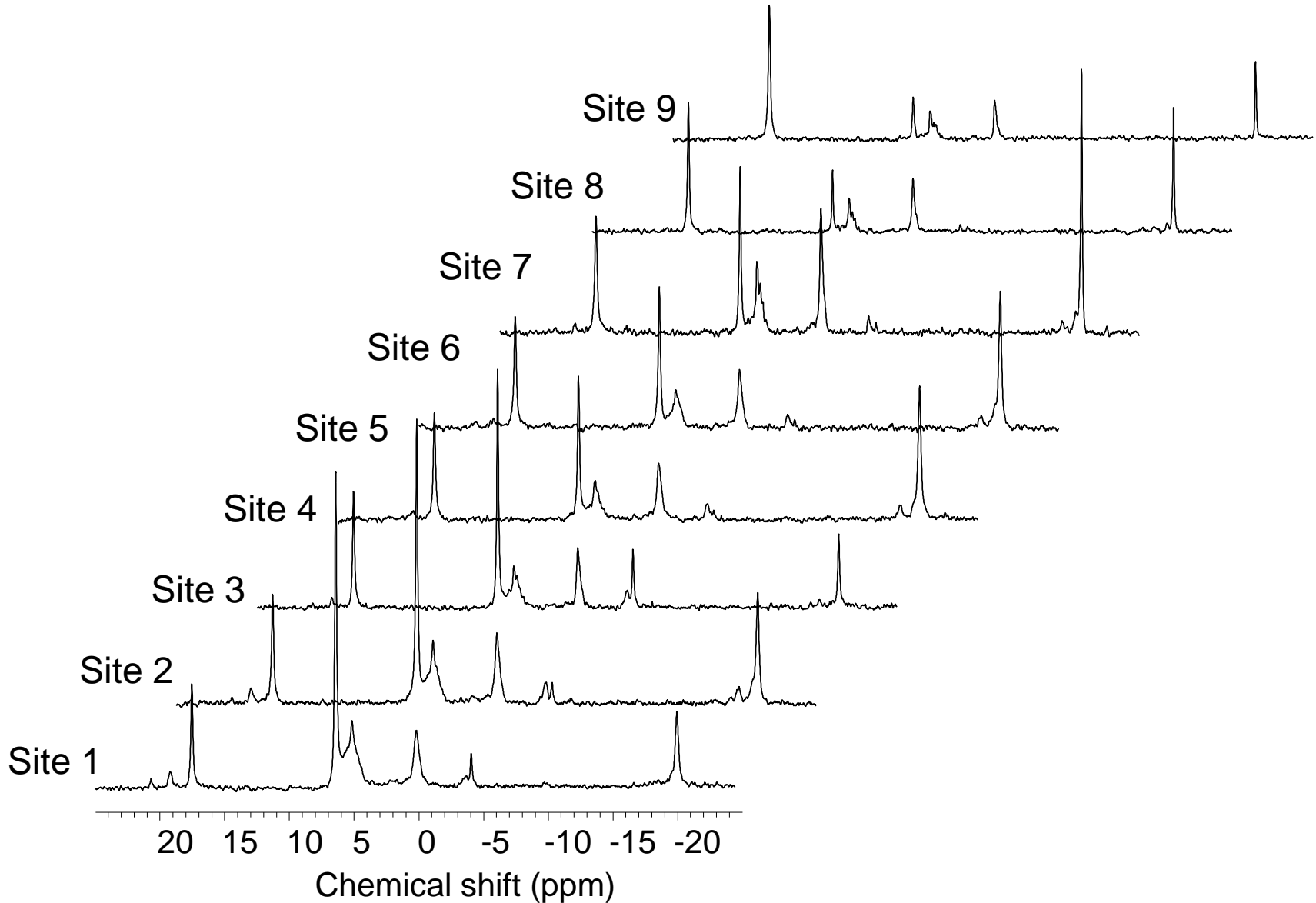


	Individuals (stems ha ⁻¹)	Shannon index	Basal area (m ² ha ⁻¹)
<i>Raphia taedigera</i>	106	1.13	103
Mixed forest	317	1.73	13
<i>Camnosperma panamense</i>	212	1.53	26
stunted <i>C. panammense</i>	529	1.9	10
Sawgrass	425	1.83	5

San San Pond Sak – Phosphorus

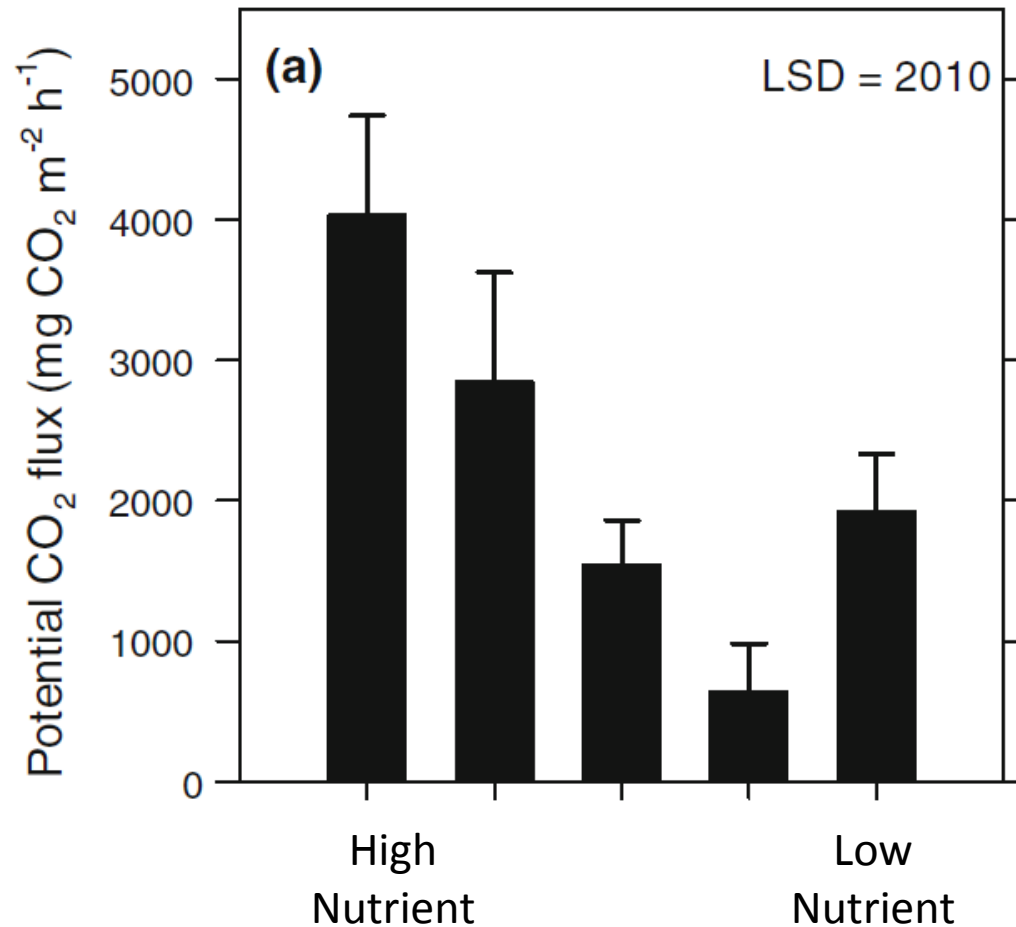


San San Pond Sak – Phosphorus



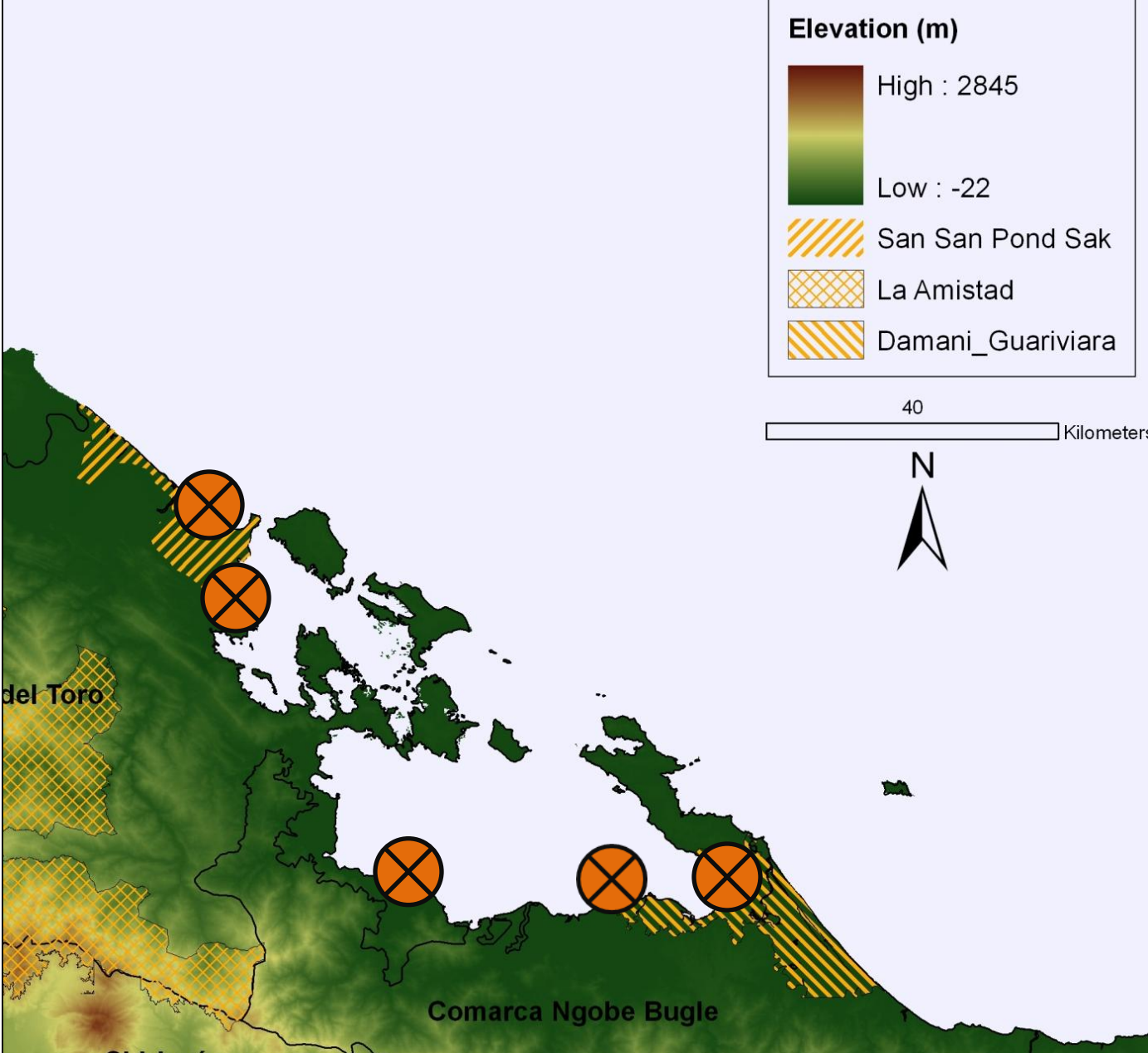
Cheesman, A. W., B. L. Turner, and K. R. Reddy. (2012). Soil Science Society of America Journal (in press)

San San Pond Sak – Gas Flux



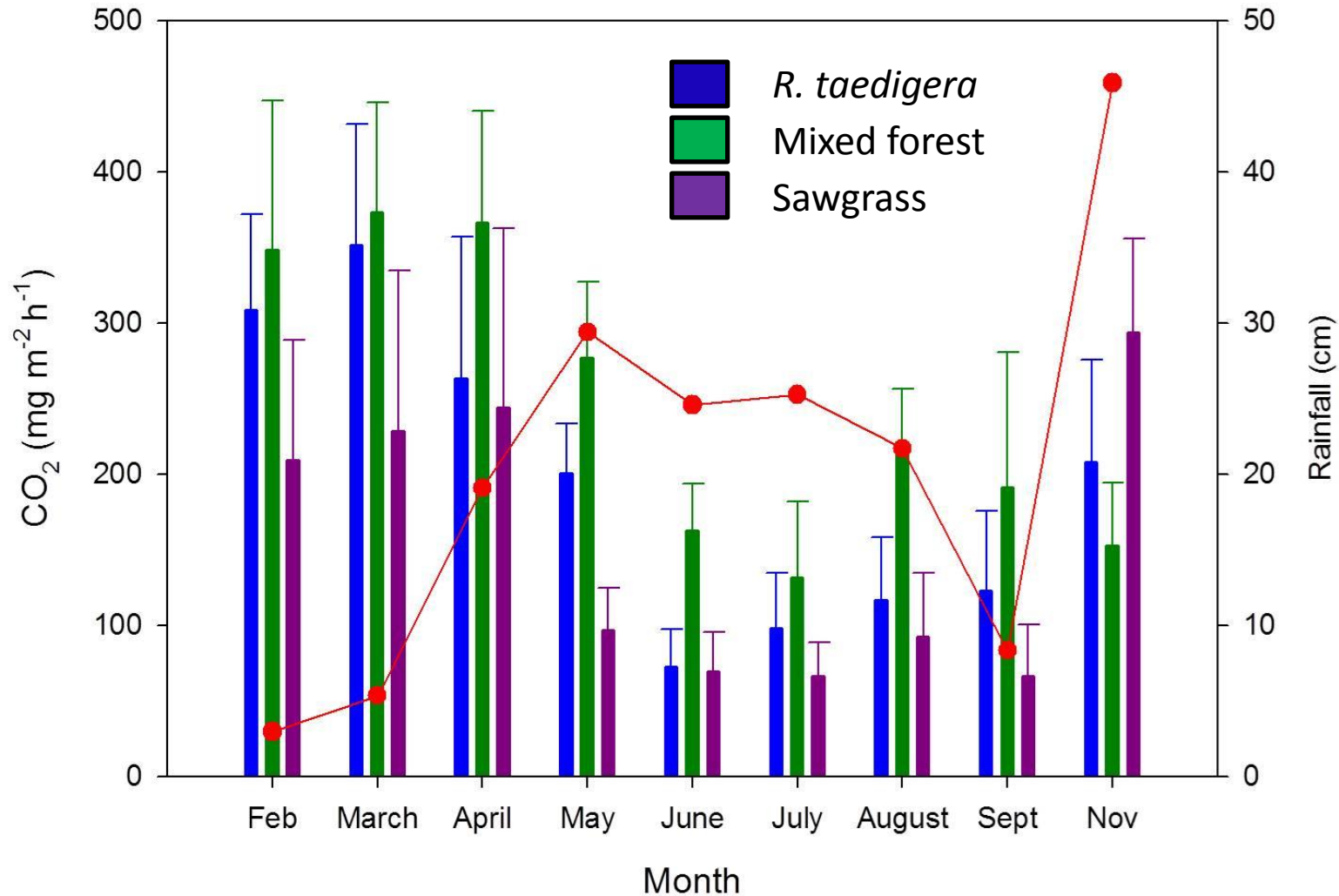
Sjögersten, S., A.W. Cheesman, O. Lopez, and B.L. Turner. 2011. Biogeochemistry 104:147-163.
Wright, E.L., C.R. Black, A.W. Cheesman, T. Drage, D. Large, B.L. Turner, and S. Sjögersten. 2011. Global Change Biology 17:2867-2881.

Scaling to the landscape level



Scaling to the landscape level

- Greater CO₂ emissions during the dry season
- Higher emissions for the hard wood forest site



What are the consequence
of the observed patterns,
and how did they form?

How will tropical wetlands
react to a dynamic future?



Depth profile

Collaborators
Aaron O'Dea
Carlos Jaramillo



Chemical characterization

Nutrients/pH/Texture

^{13}C - Nuclear Magnetic resonance

^{31}P - NMR

Dating and determination of accretion rates

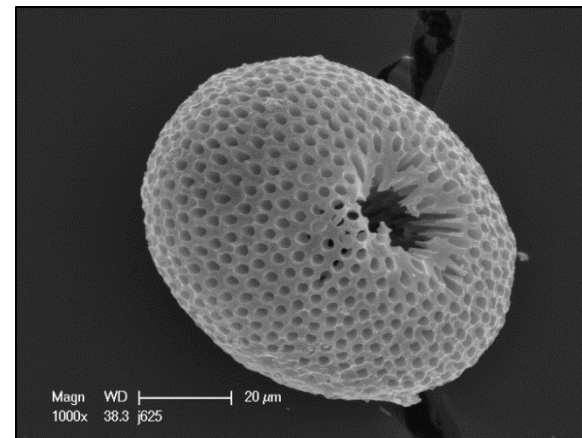
Macro/micro fossils

^{14}C dating

Dating and determination of accretion rates

Macro/micro fossils

^{14}C dating





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The Bocas STRI Station (Gabriel, Plinio, Eric Brown, Rachel Collin), Dr K.R. Reddy



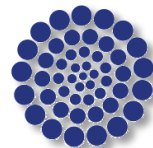
The University of
Nottingham



UF UNIVERSITY of
FLORIDA
IFAS



INDICASAT-AIP

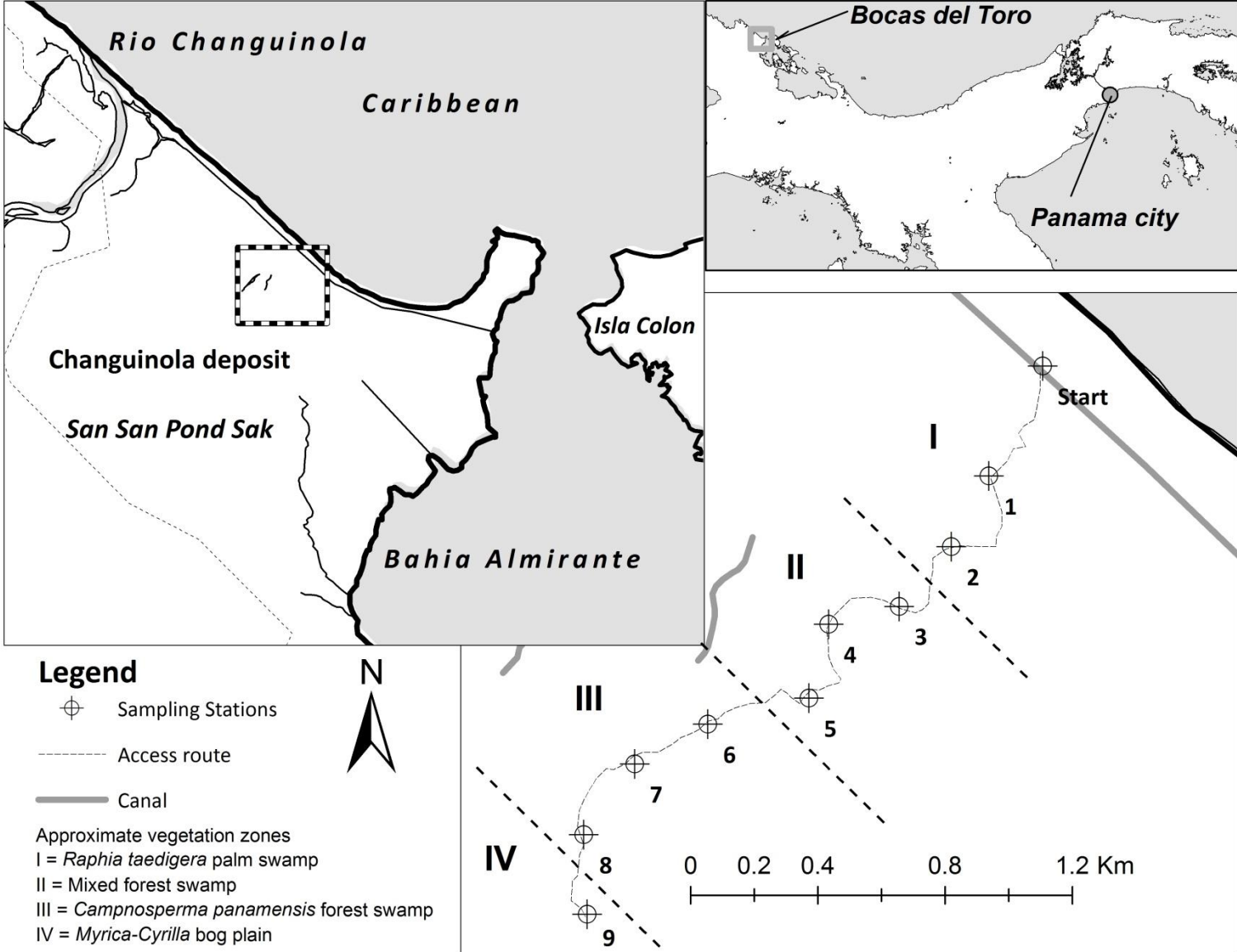


CONACYT



Additional Slides

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Local pressures

