

Blue carbon & mangroves - update

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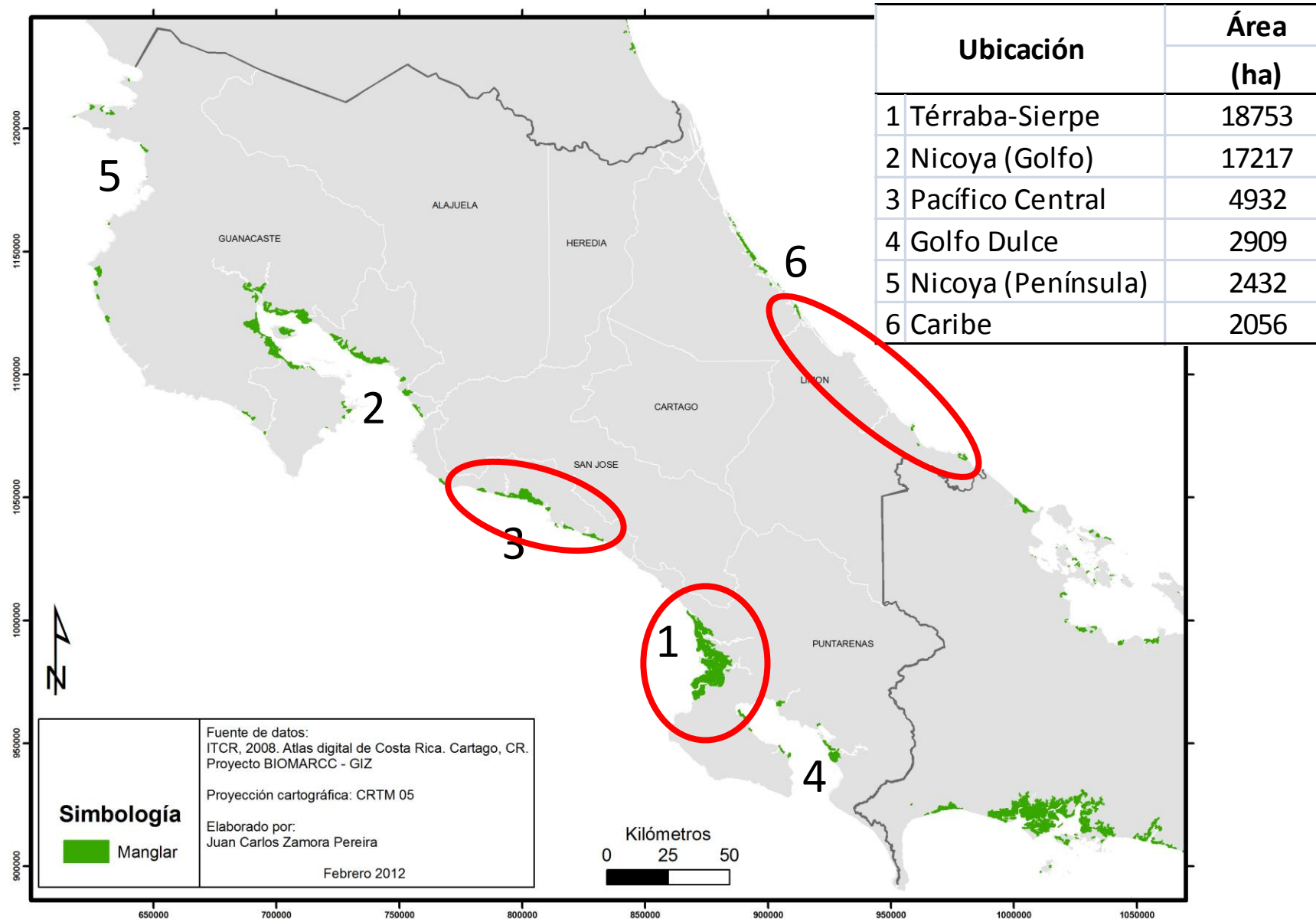
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Content

- “**Blue Carbon**” in Costa Rican mangroves
- Some methodological considerations
- Moving forward

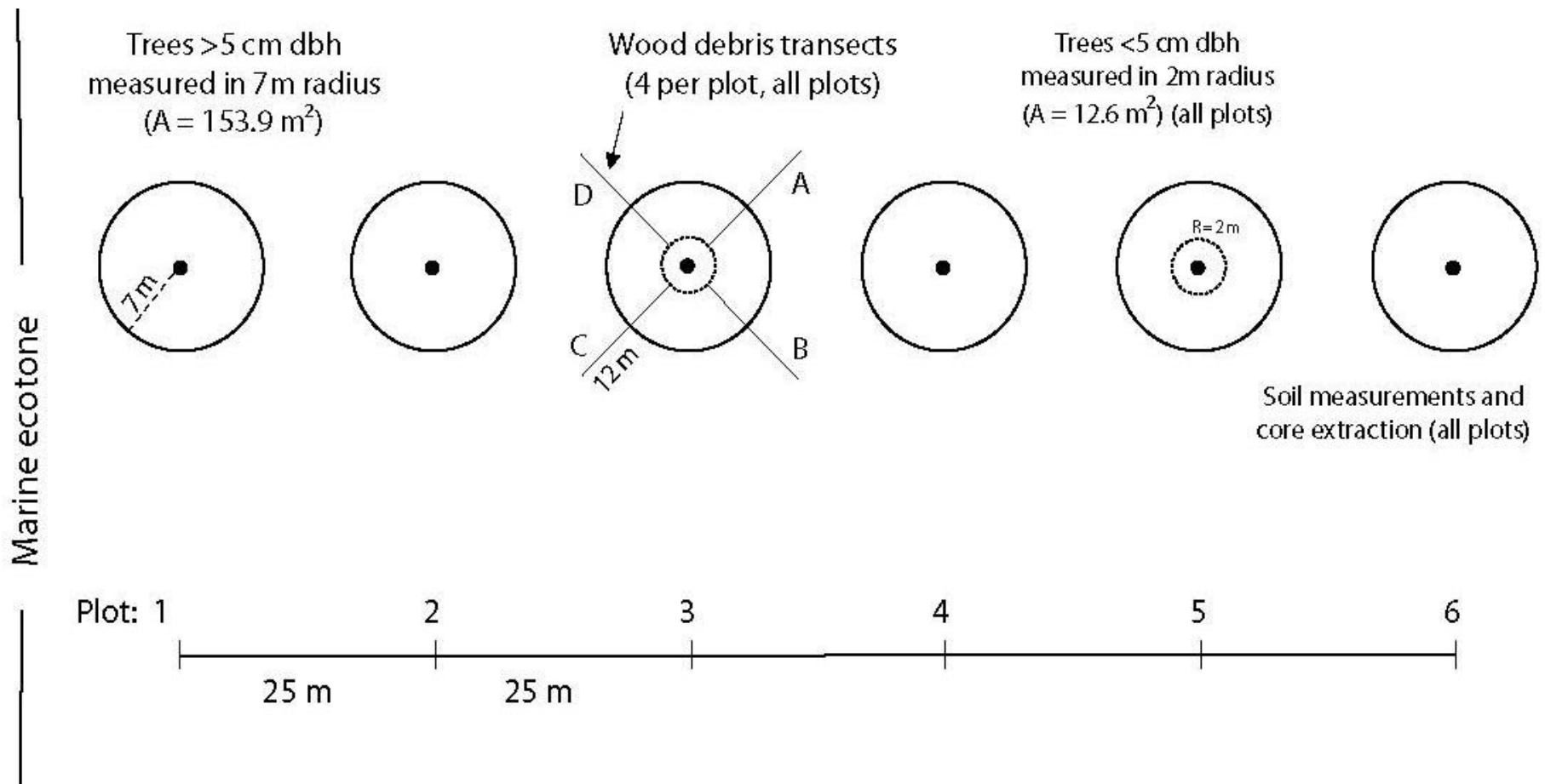
Mangroves in Costa Rica



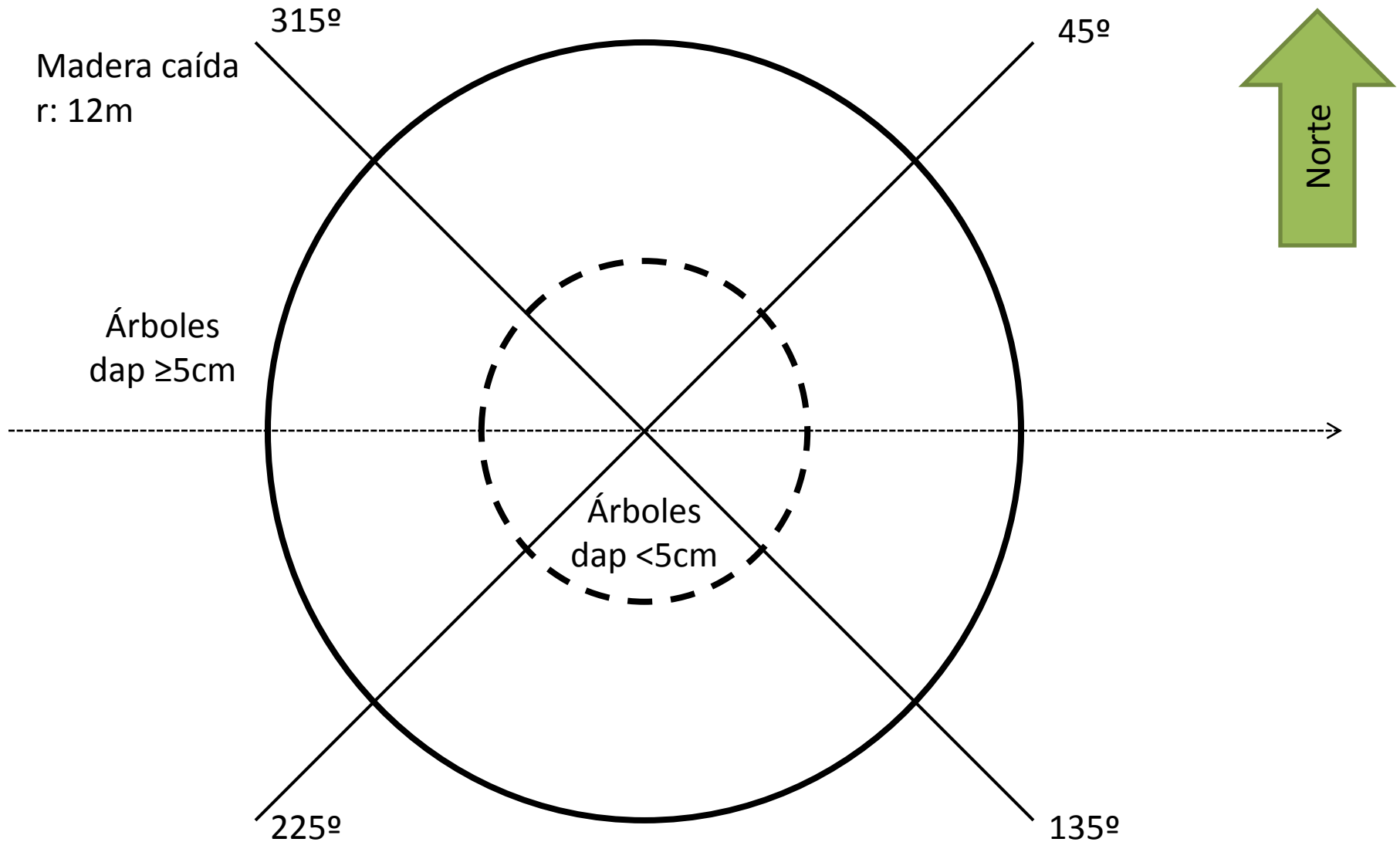
Carbon in mangroves - Costa Rica

- 3 inventories so far:
 - 1 Caribbean & 2 Pacific
- Standard methods (Kauffman & Donato 2012)
 - Nested circular plots
 - Transects

Métodos – Transectos



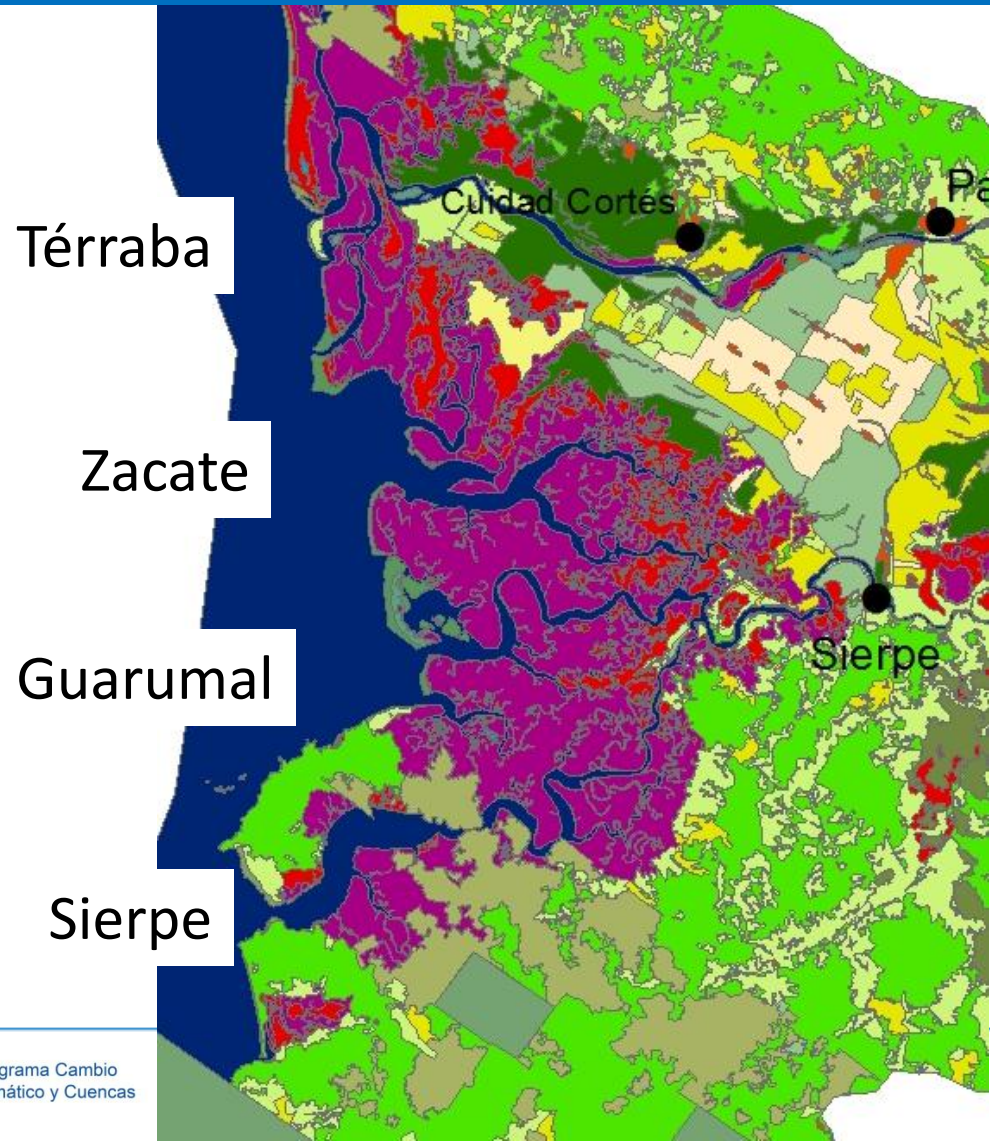
Métodos – Parcelas anidadas



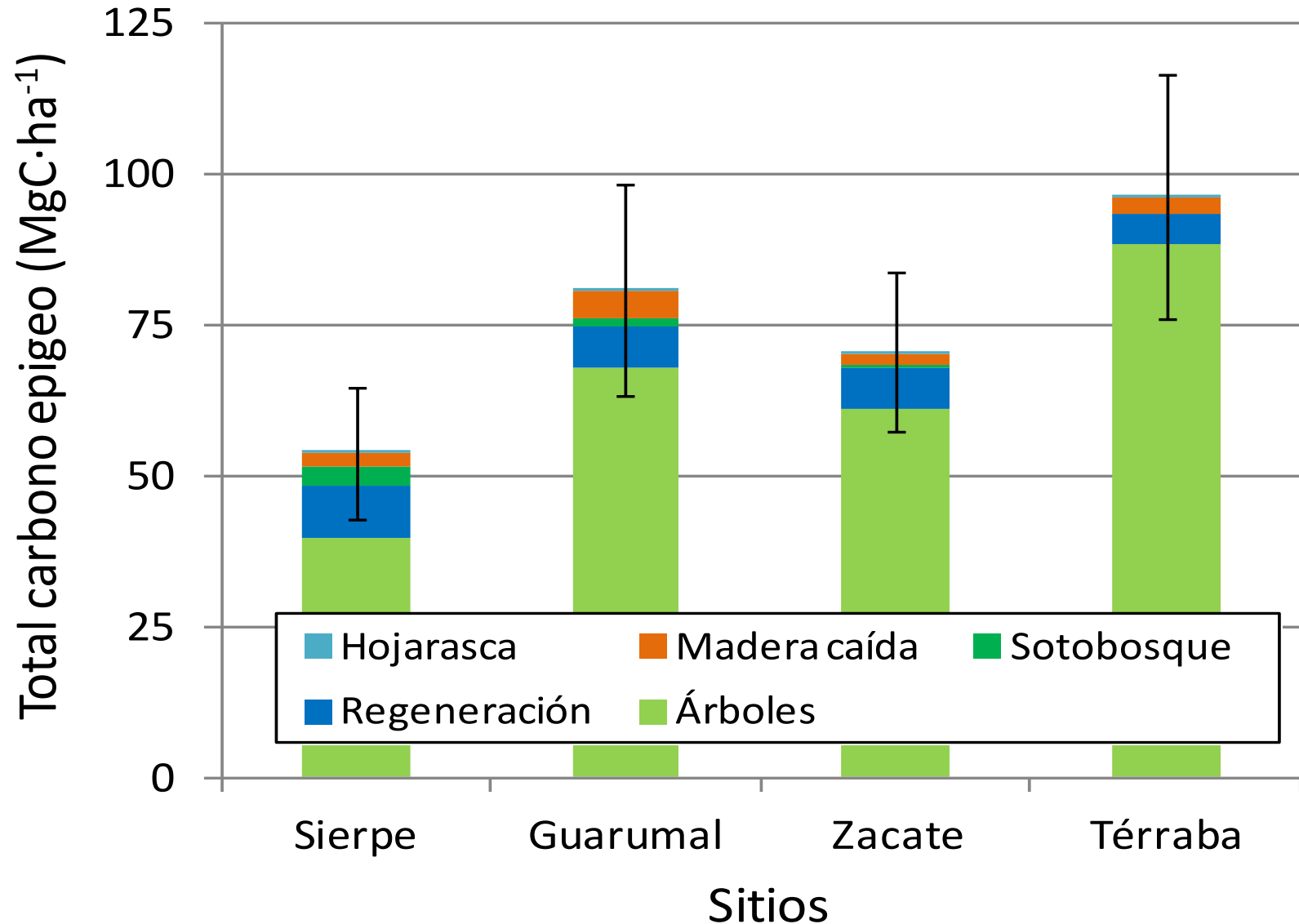


Ecosystem carbon: Térraba-Sierpe

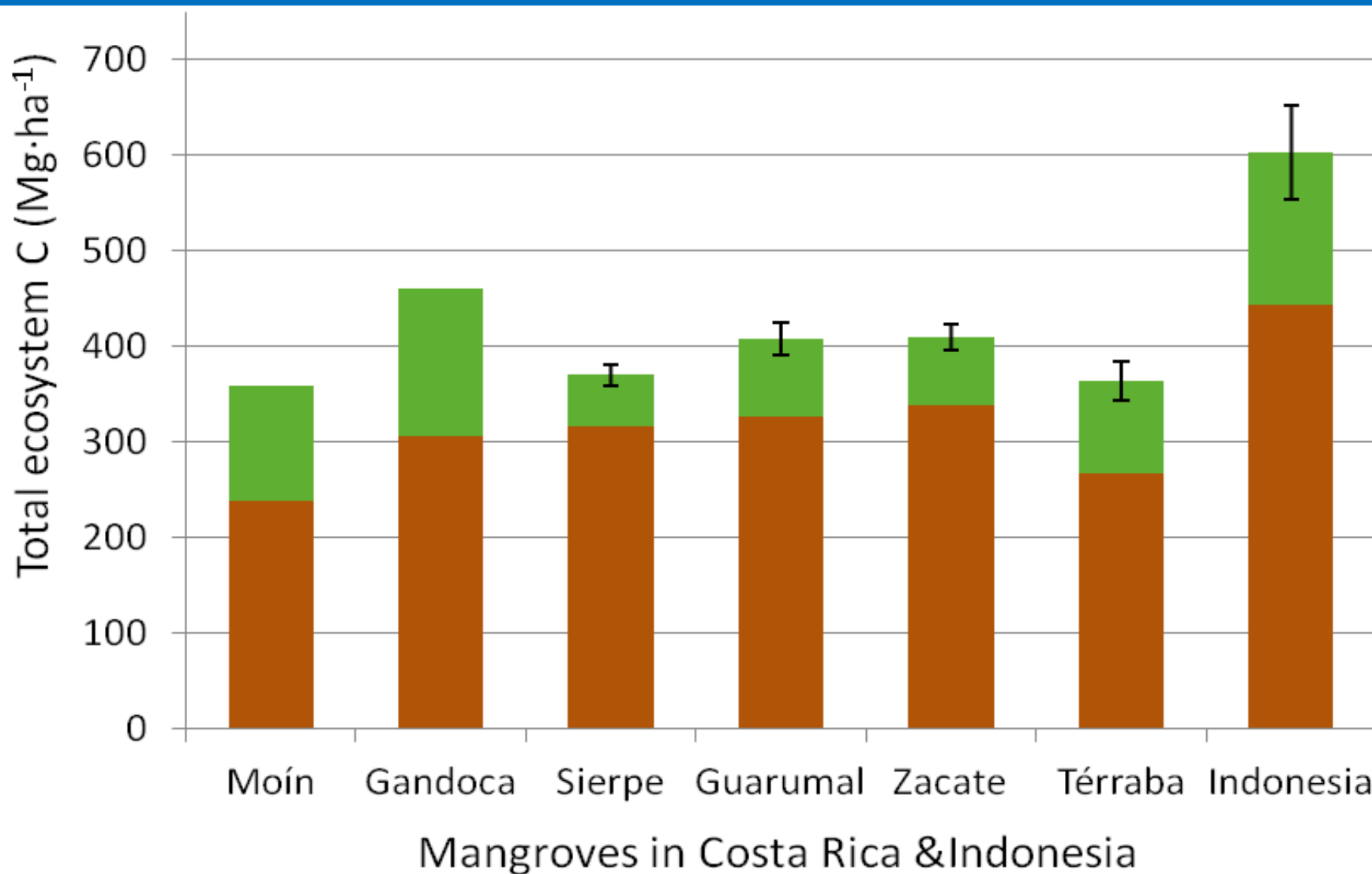
- 140 plots in 28 transects
- Ecosystem-level stocks
 - Soil C to 1 m



Aboveground carbon stocks



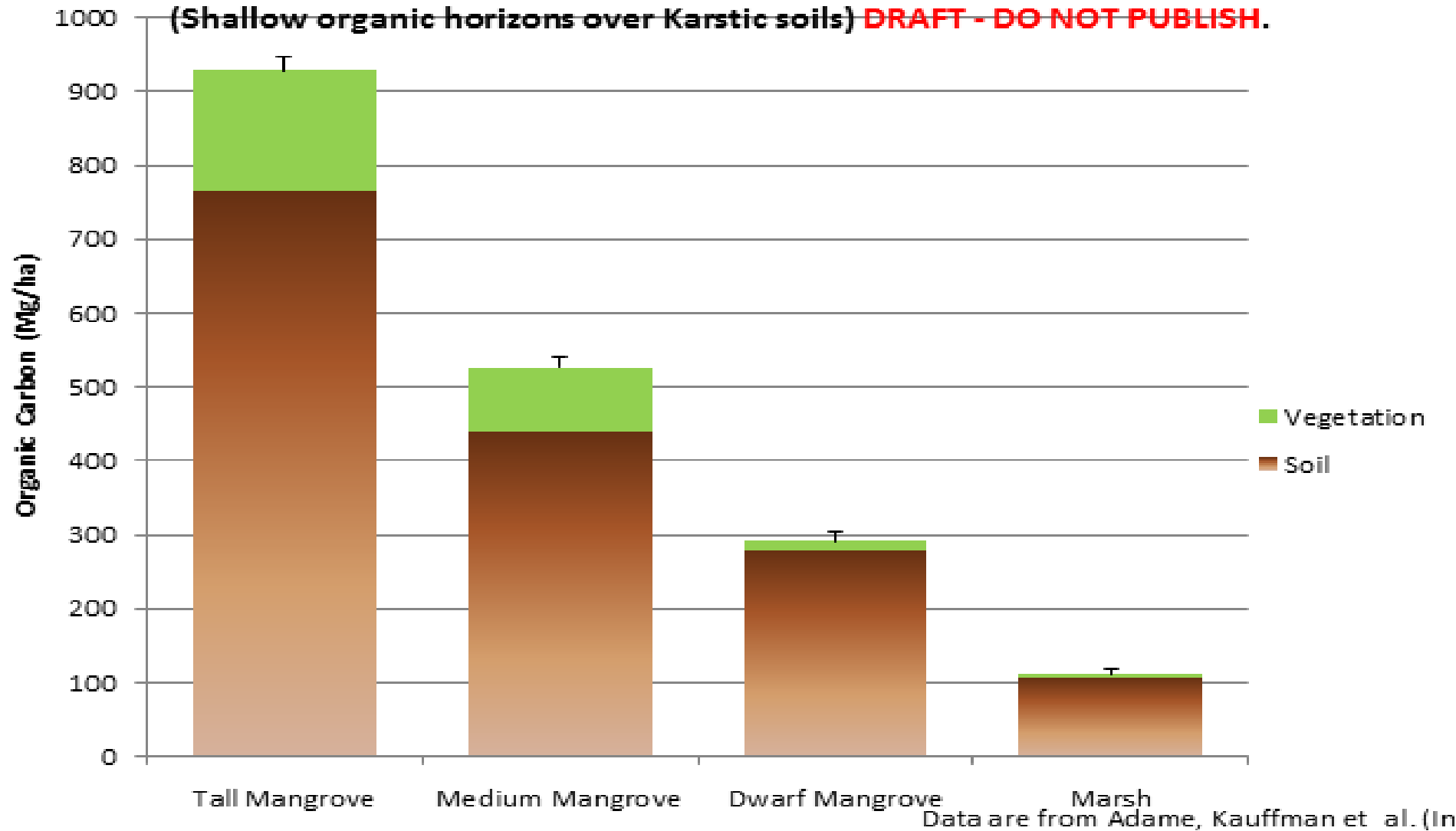
Sierpe vs. other locations



Datos: Moín/Gandoca (Manrow 2011); Térraba-Sierpe (este estudio); Indonesia (Donato et al 2012).

Ecosystem C in Mexican mangroves

Ecosystem Carbon Stocks of Mexican Caribbean Mangroves, Sian Kaan BR
(Shallow organic horizons over Karstic soils) **DRAFT - DO NOT PUBLISH.**



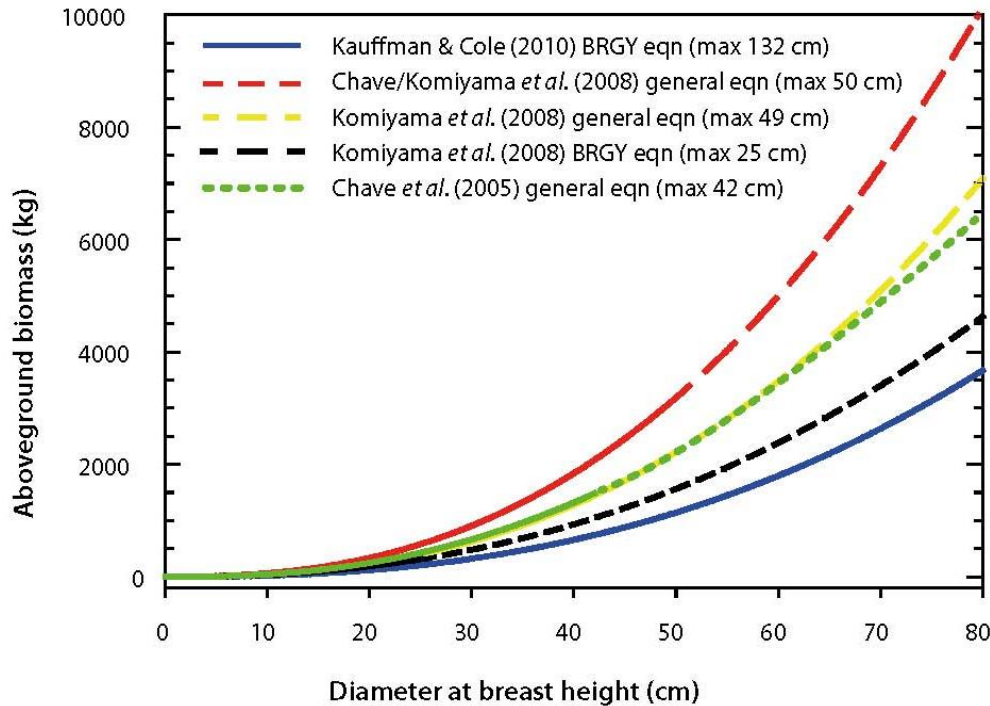
Challenges

- Absence of local factors
 - Allometric equations
 - BEF and r:s ratios
 - C concentrations
 - Sg

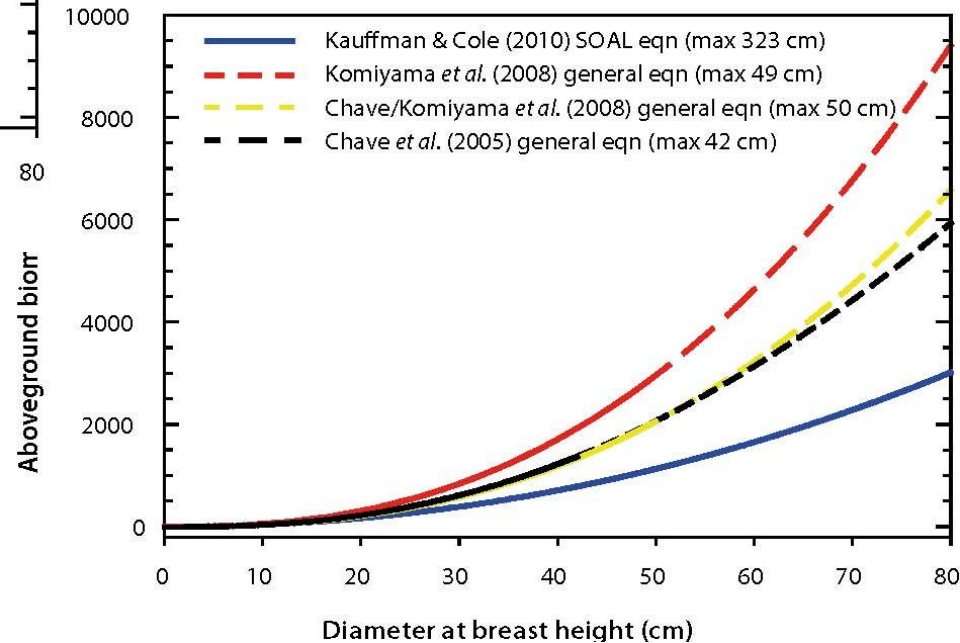


Choice of allometric equations

Bruguiera gymnorhiza



Sonneratia alba



Challenges

- Absence of local factors
 - Allometric equations
 - BEF and r:s ratios
 - C concentrations
 - Sg
- Taxonomy

Does not mean
we cannot make
inferences



Next steps - data

- Additional studies & integration
 - Area & ecosystem types
 - Mangrove ecology (C dynamics)
 - Carbon fluxes
 - Valuation & ecosystem services
 - Community involvement
 - Remote sensing/GIS & modelling
 - Activity data
 - Emission factors
- } REDD+ MRV

Carbon fluxes from CR mangroves

Ubicación	Área	%	Densidad C	Existencias C
	(ha)		(MgC·ha ⁻¹)	(Tg)
1 Terraba-Sierpe	18753	38.8	446.1	8.37
2 Nicoya (Golfo)	17217	35.6	446.1	7.68
3 Pacífico Central	4932	10.2	446.1	2.20
4 Golfo Dulce	2909	6.0	446.1	1.30
5 Nicoya (Península)	2432	5.0	446.1	1.08
6 Caribe	2056	4.3	269.8	0.55
Total 2012	48299			21.18

Next steps – sites & funding

- Increasing scale from local to regional
 - From Costa Rica to Central America to...
 - El Salvador, Guatemala, Honduras, Panamá
 - México, Colombia, Ecuador

Funding sources?

- In-country research money
- GEF Small Grants Programme
- ...

Costa Rica: BC pilot site

- REDD+ FCPF country
- Human & technical capacity
- PES system
- Strong institutionalility
- Legal frameworks & political support



Térraba-Sierpe, Costa Rica

Photo: Miguel Cifuentes

Thanks!

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Special thanks to:

Lic. Danilo Torres - ITCR

Dr. J. Boone Kauffman – OSU

Mtro. Lenin corrales - GIZ

