



Developing a Data-driven Classification of South Florida Plant Communities – Data Acquisition and Management, and classification of herbaceous vegetation

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Background

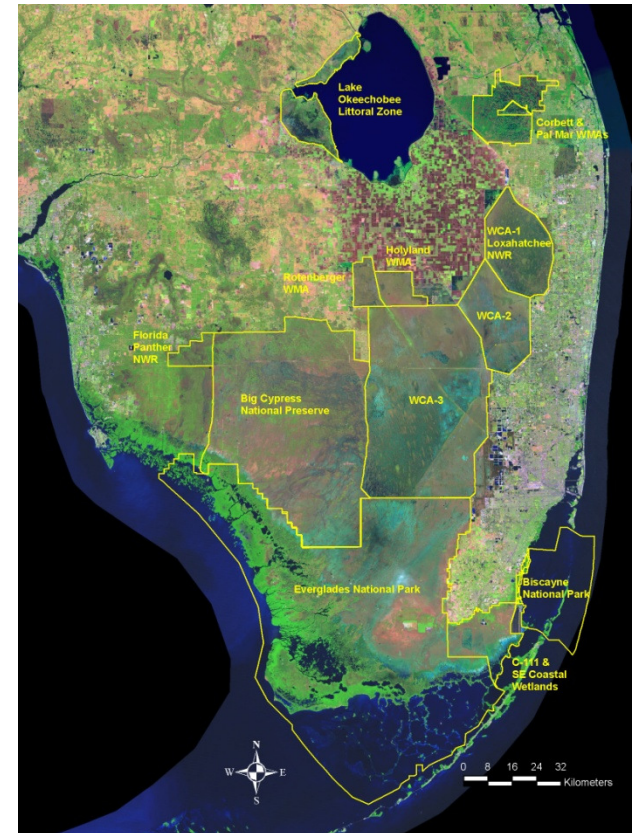
Vegetation Maps & Classification

- One of 12 NPS I&M Program Basic Inventories
- National Vegetation Classification System (NVCS)









South Florida Vegetation Mapping

- NPS/SFCN (eg. Biscayne NP)
- SFWMD (eg. WCAs)

**Vegetation Classification System for
South Florida Natural Areas**
– Rutchey *et al.* (2006)



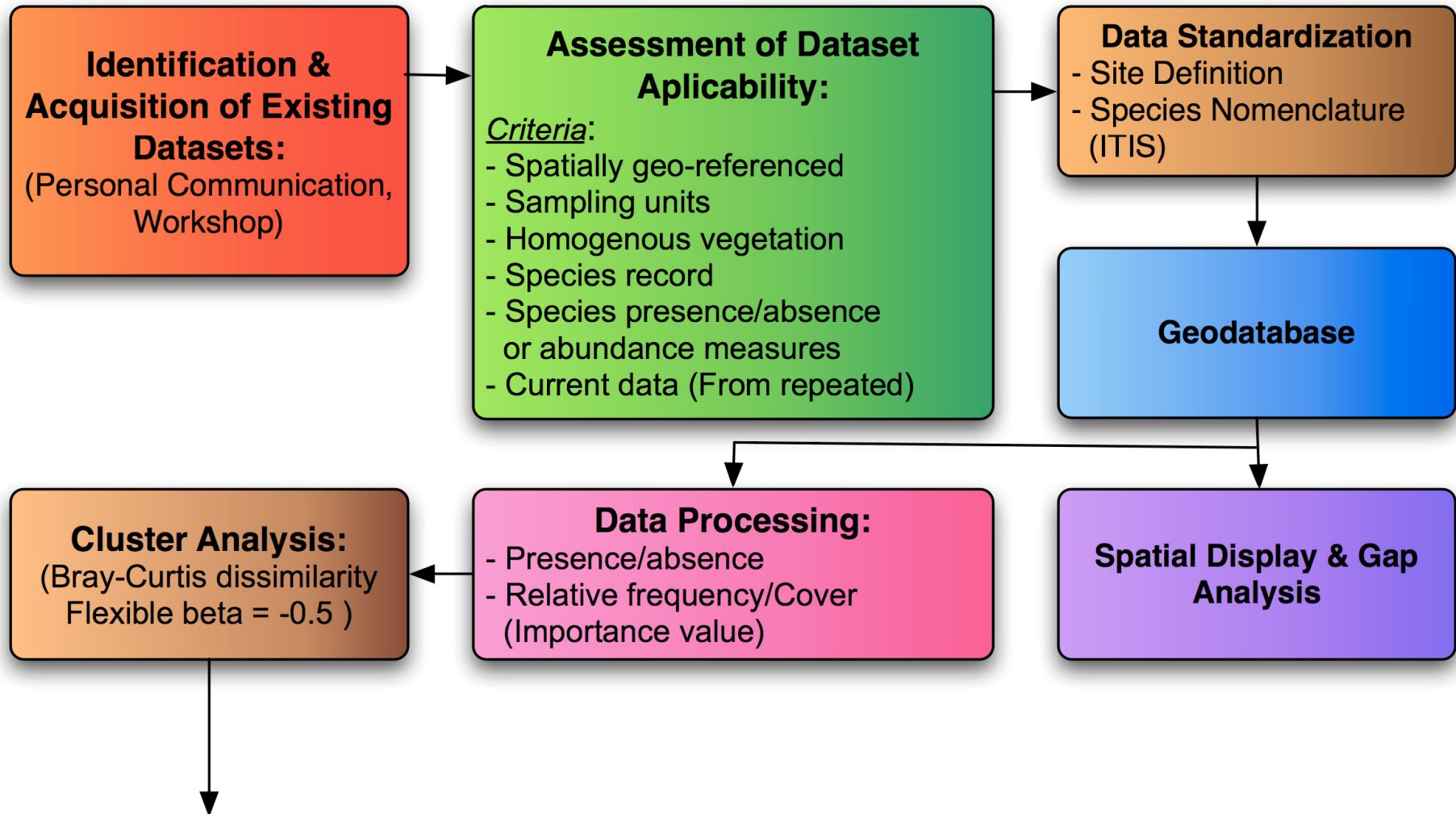
Rutchey et al. Classification – Level 1 Groups

		Height (m)			
		>5 m	>0 to 5 m	Under water	
Woody Cover (%)	>50%	 Forest	 Shrubland		
	10-50%	 Woodland	 Scrub		
	<10%		 Marsh	 Dune	 Submerged
	0-100%	 Exotic			

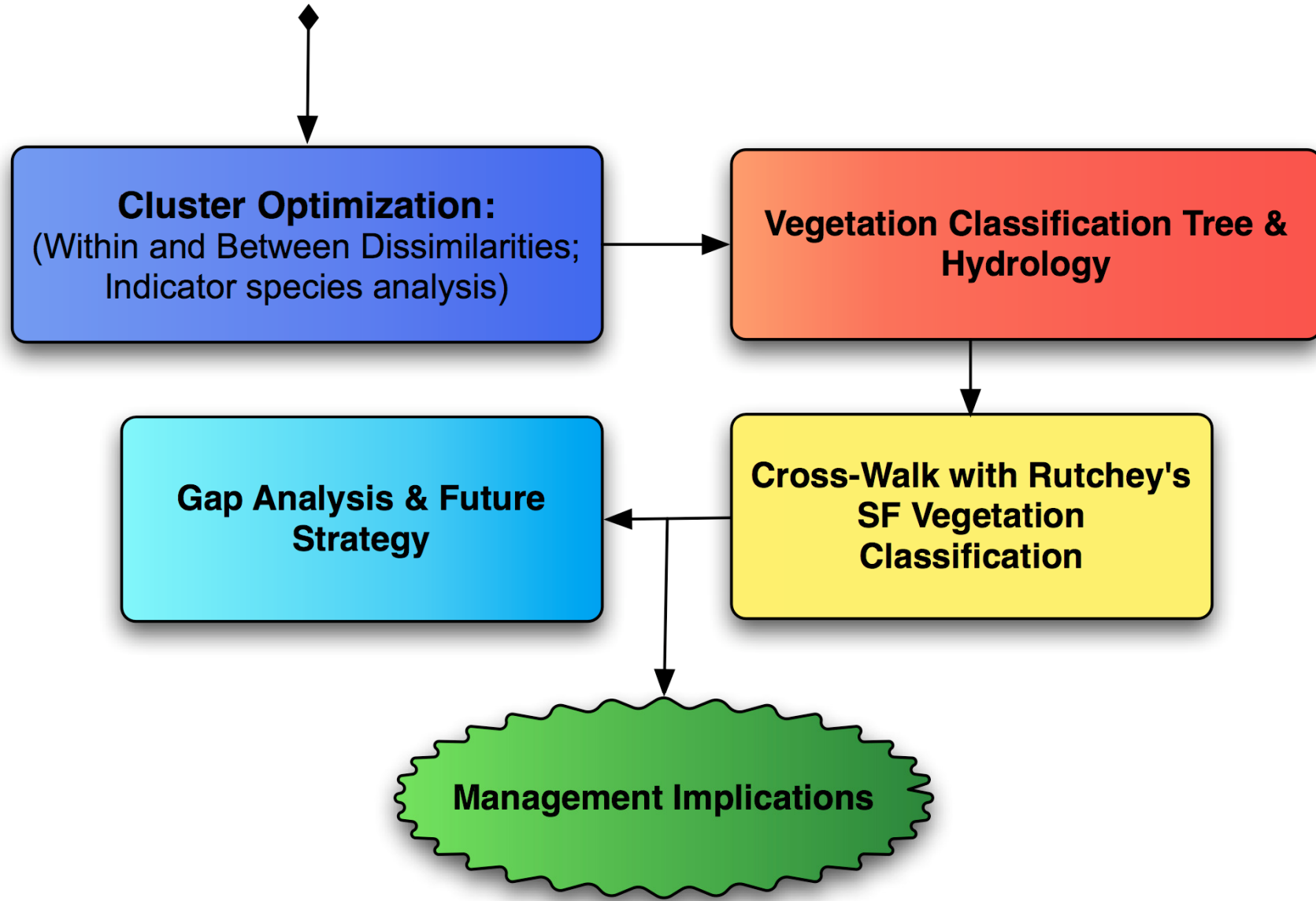
Objectives

- **To identify useful existing vegetation datasets**
- **To collect and screen the datasets, and compile them into a geo-database**
- **To conduct an initial classification analysis of seasonally/permanently flooded prairie & marsh vegetation**
- **To identify gaps and design a strategy for augmenting existing information from poorly represented landscapes**

Methodology

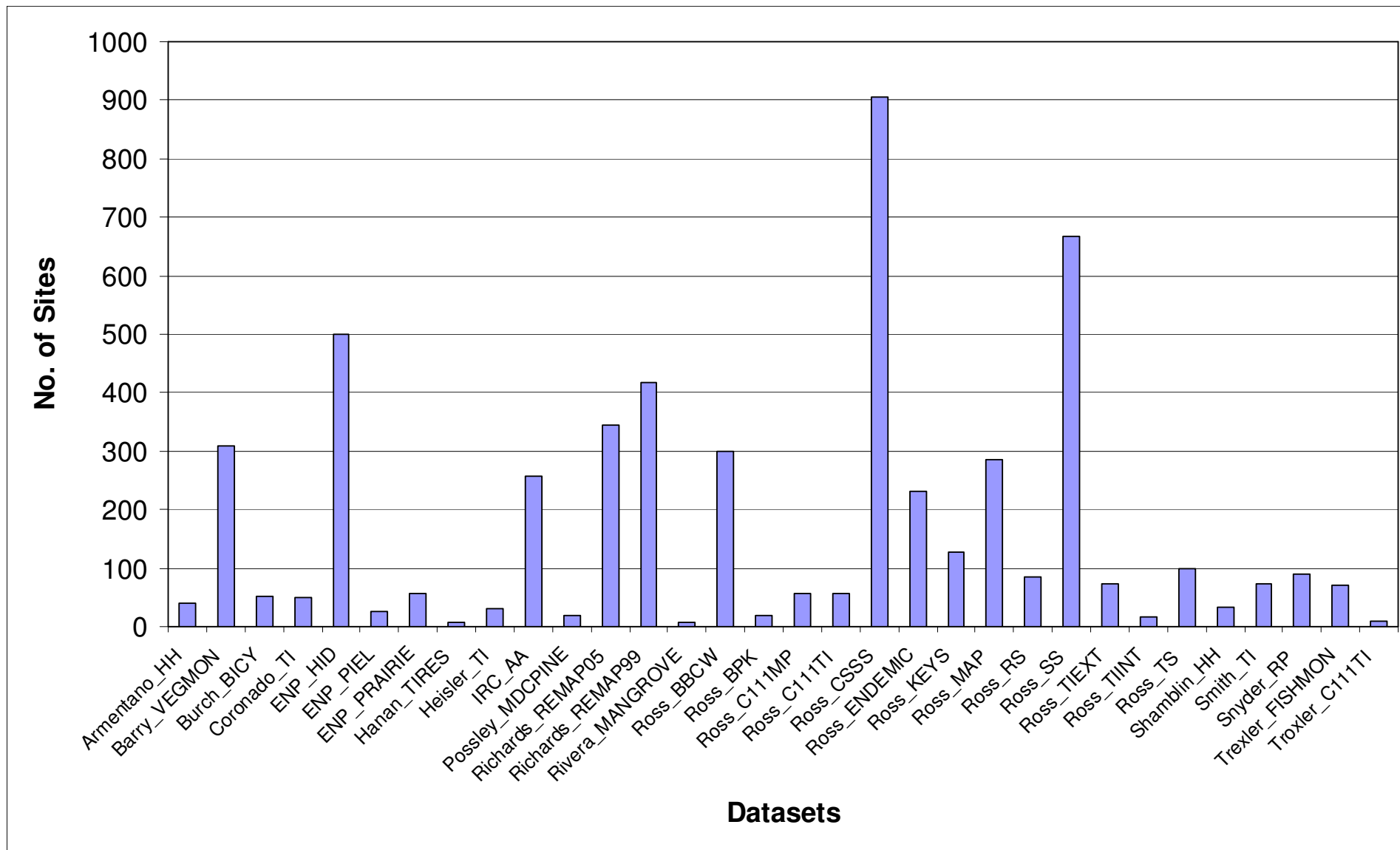


Methodology (contd.)



Datasets with Number of Sites

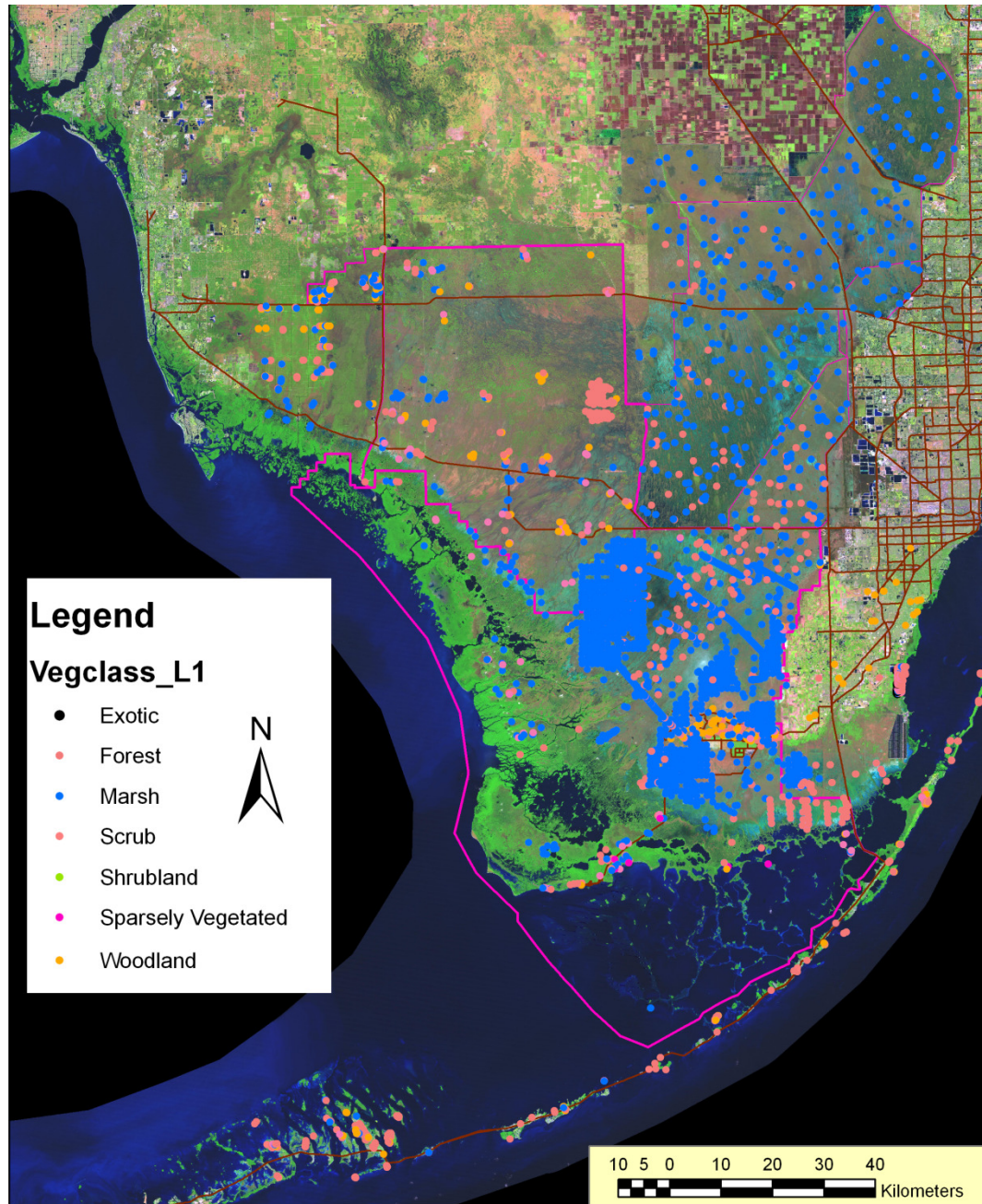
(without WCA ground truthing & IRC_Intercept data)



Sampling units - plots

DATASET_ID	PLOT_SIZE	No_of_SITES
Burch_BICY, Cornad_TI, ENP_HID, Ross_BBCW	10 x 10 m ²	900
ENP_PIEL, ENP_PRAIRIE	50x20 m ²	84
Hanan_TIRES	Variable	8
IRC_AA	(4) 40x10 m ²	257
Possley_MDCPINE	20 x 40 m ²	20
Richards_REMAP05, Richard_REMAP99	10x2 m ²	762
Rivera_MANGROVE, Shamblin_HH	20 x 20 m ²	39
Ross_BPK, Snyder_RP	100 x 100 m ²	72
Ross_C111MP	50 m radius	57
Ross_C111TI	Variable	56
Ross_CSSS	60 x 1 m ²	906
Ross_ENDEMIC	5 m radius	232
Ross_KEYS, Ross_MAP, Ross_RS,	5 x 5 m ²	496
Ross_SS	10 x 10 m ²	668
Ross_TIEXT	Variable	72
Ross_TIINT	Variable	16
Ross_TS	5 x 1 m ²	100
Smith_TI	Variable	72
Trexler_FISHMON	100 x 100 m ²	70
Troxler_C111TI	2 x 3 m ²	9

Spatial distribution of Data Points

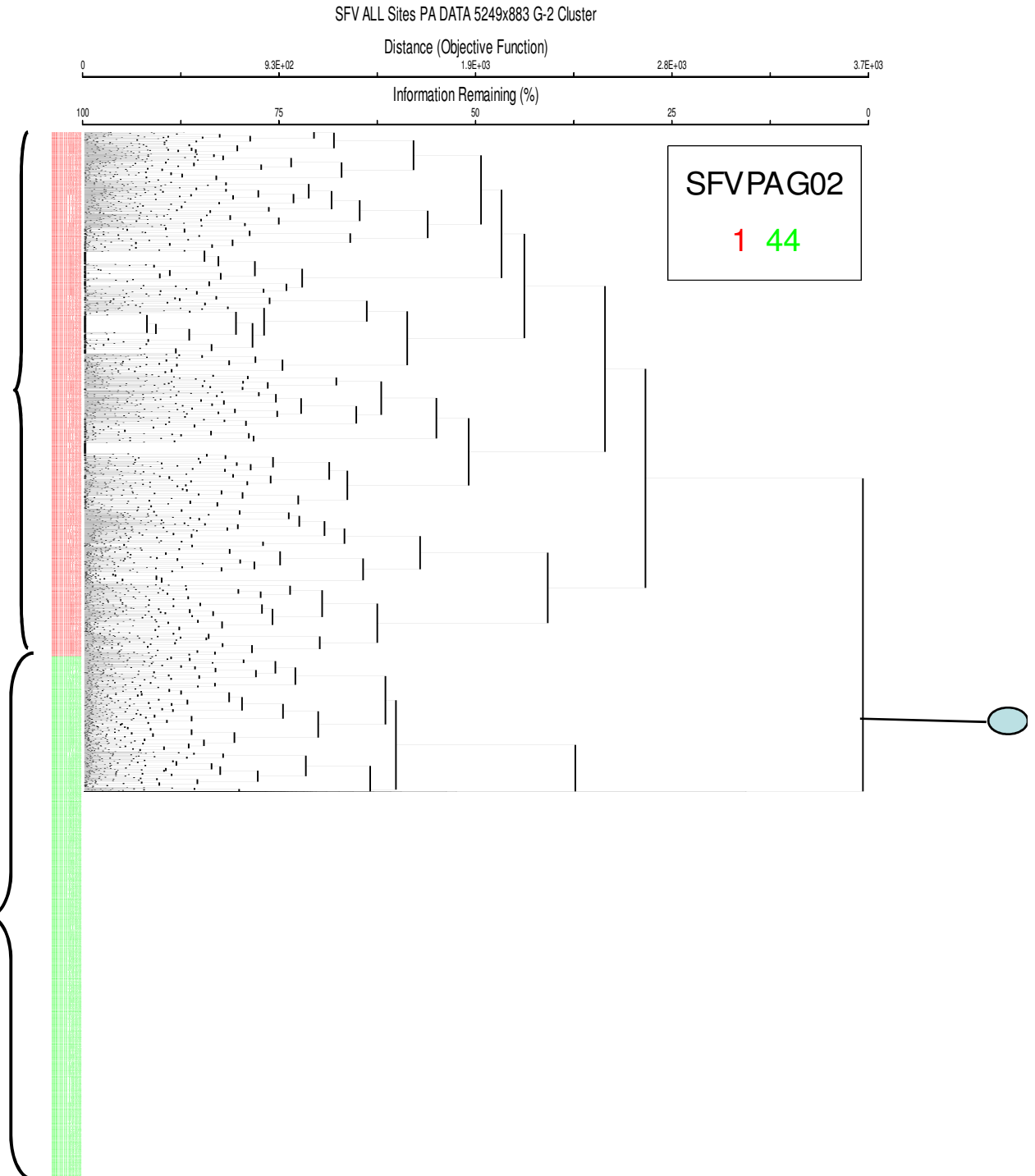


Clustering based on Presence- Absence Data (5249 sites & 883 species)

1 = Woody & others
44 = Herbaceous

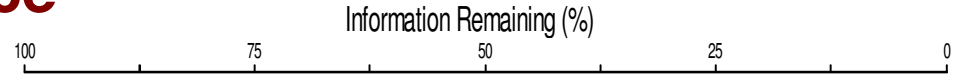
Herbaceous Sites = 3,681
- Outliers (166)

= 3,515 Sites
with 448 species



Clustering based on Importance

Value (Rel. Freq + Rel. Cover)



~~(3,515 Marsh Sites & 448 Species)~~

Paspalum monostachyum (?)

Emergent/Mixed herbaceous **Marsh**

Eleocharis-Utricularia-
Nymphaea **Marsh**

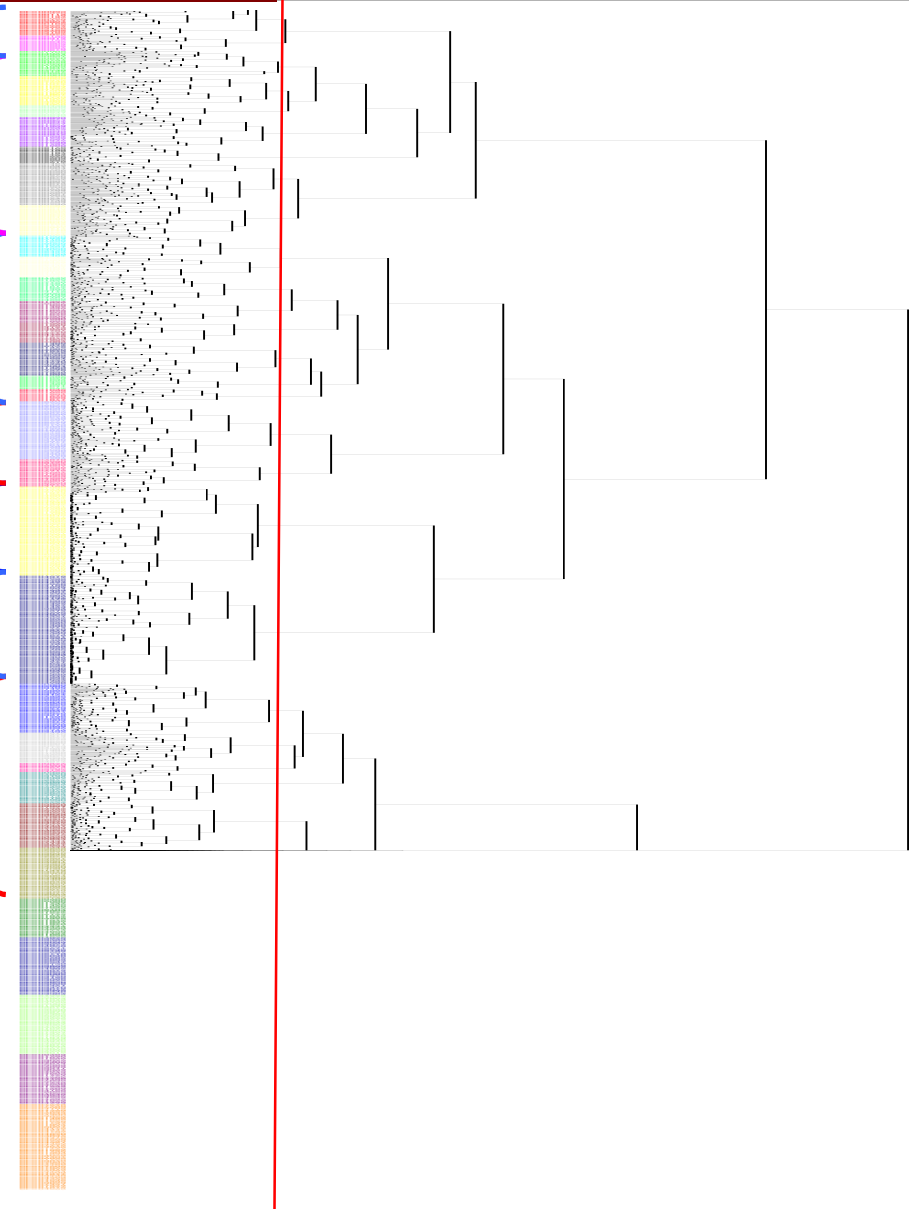
Rhynchospora **Marsh**

Cladium **Marsh**

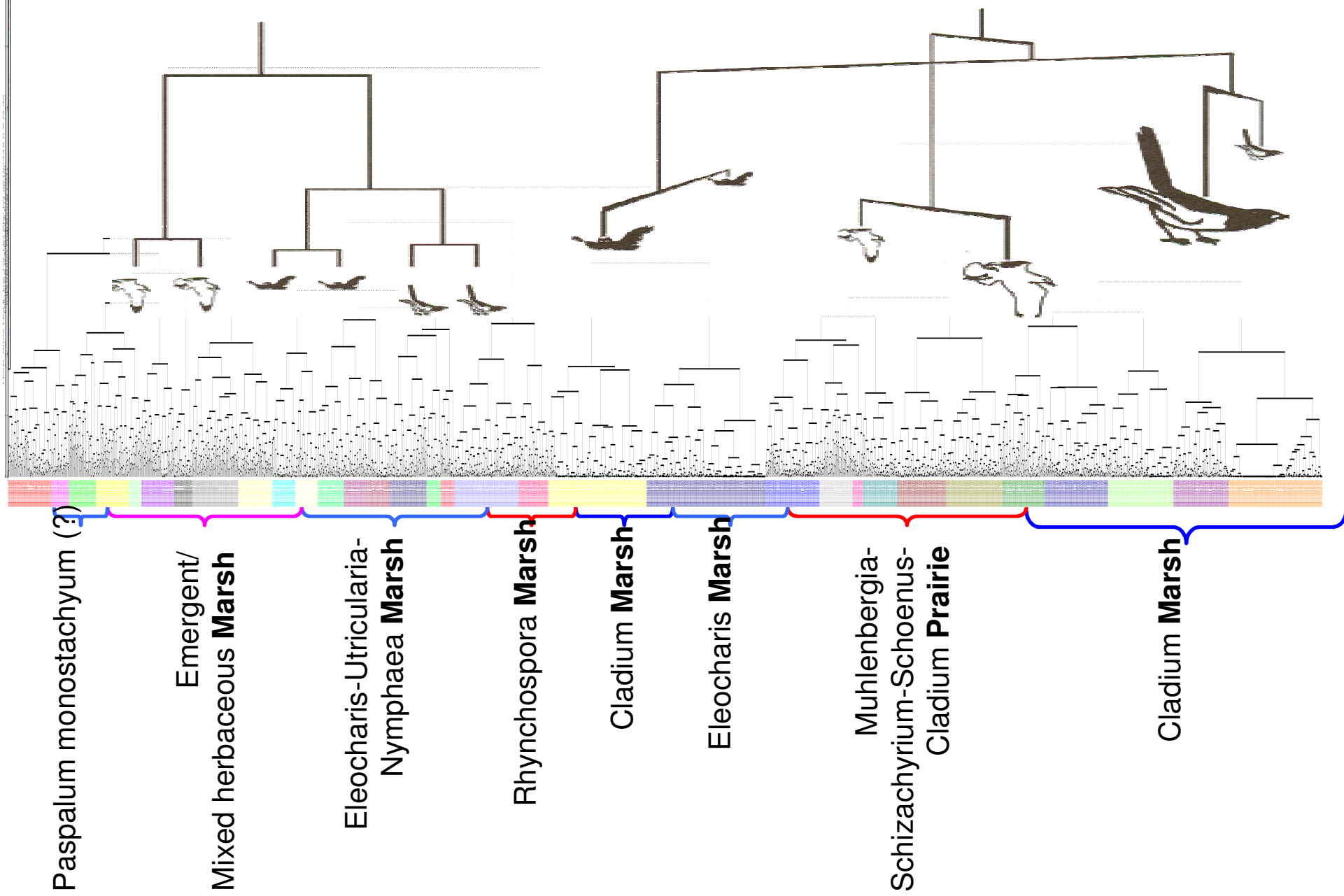
Eleocharis **Marsh**

Muhlenbergia-Schizachyrium-
Schoenus-Cladium **Prairie**

Cladium **Marsh**

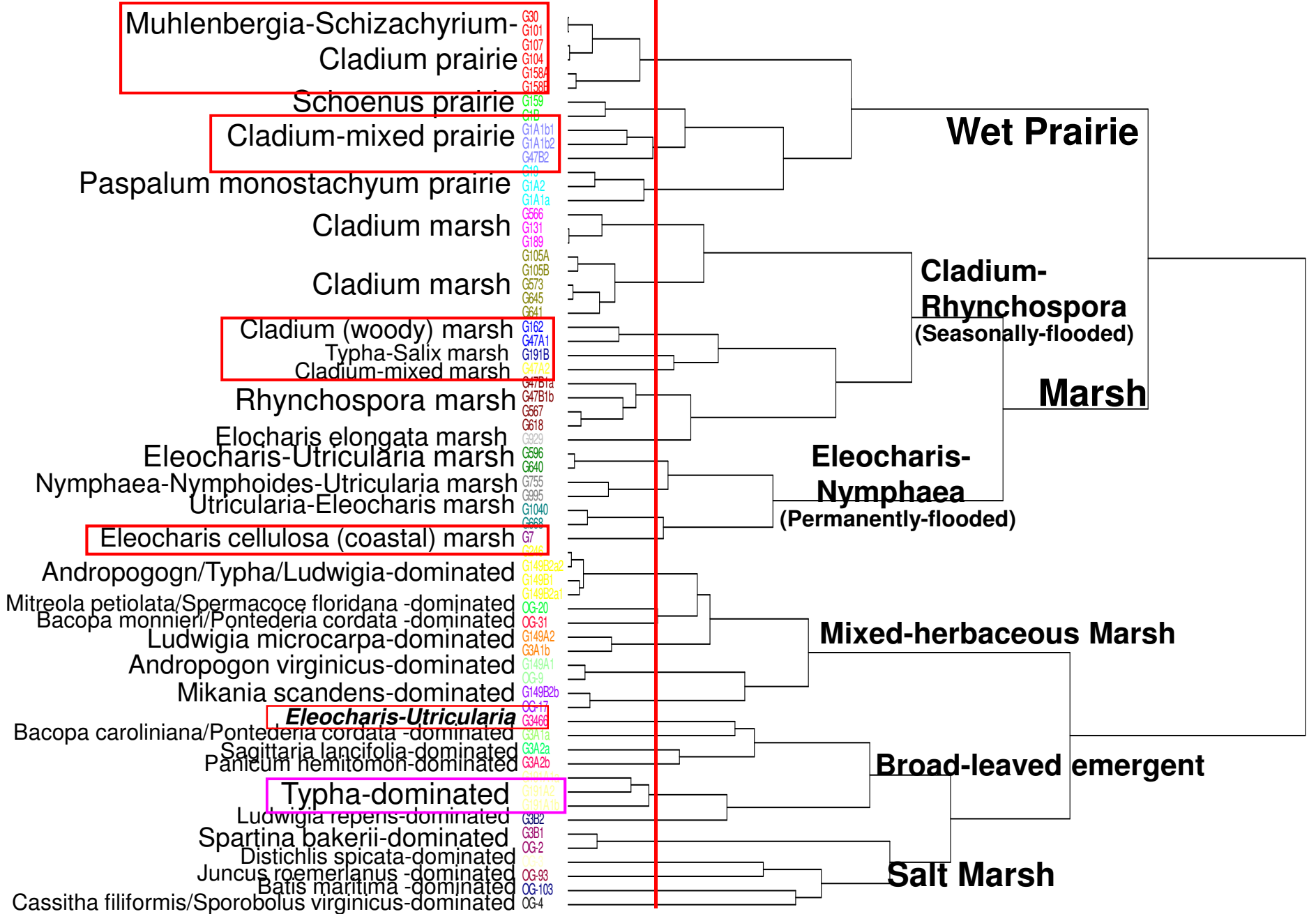
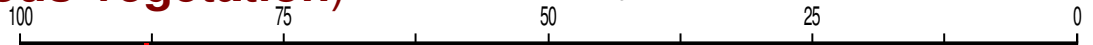


Finding groups

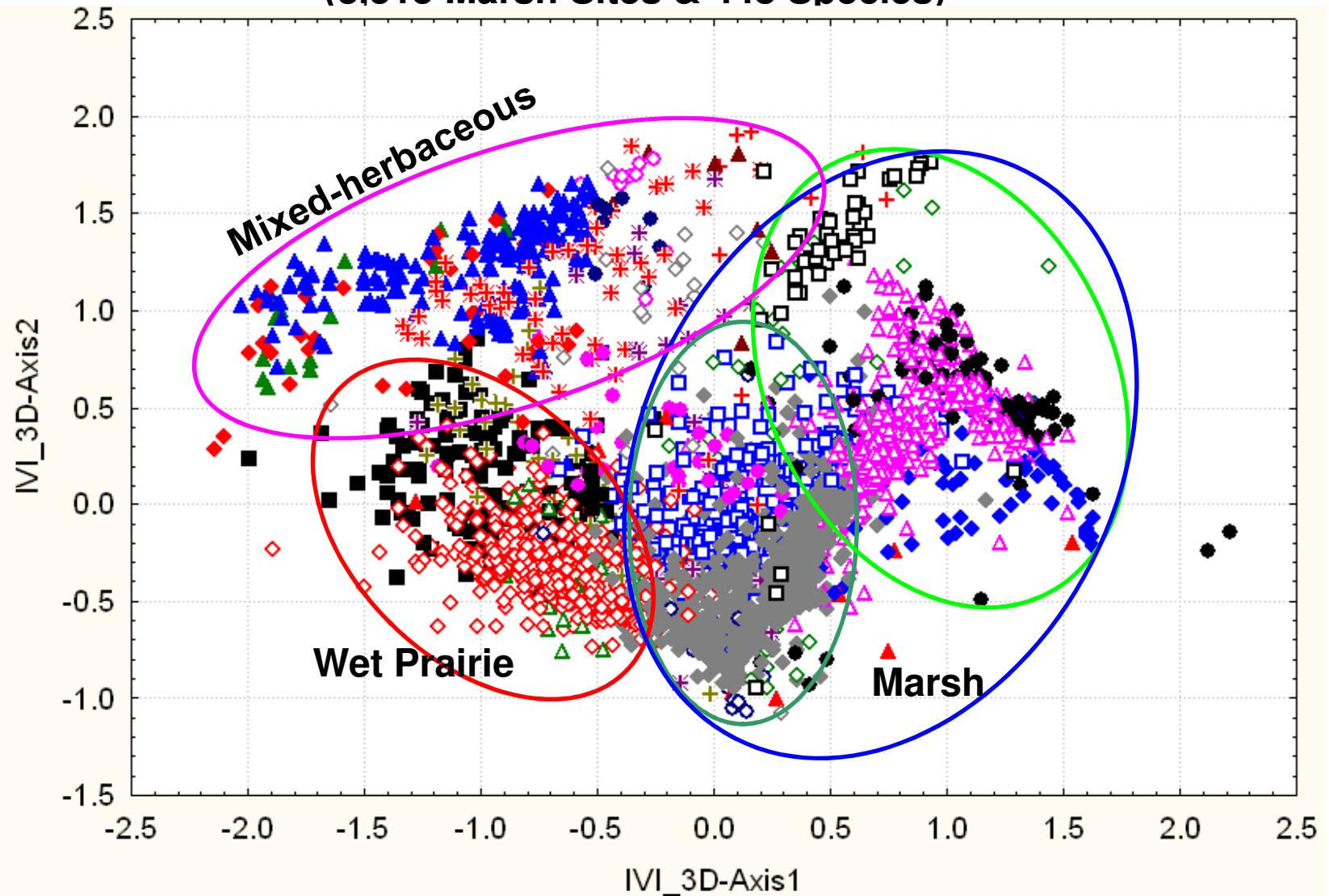


Level 1: Marsh (Herbaceous Vegetation)

Information Remaining (%)

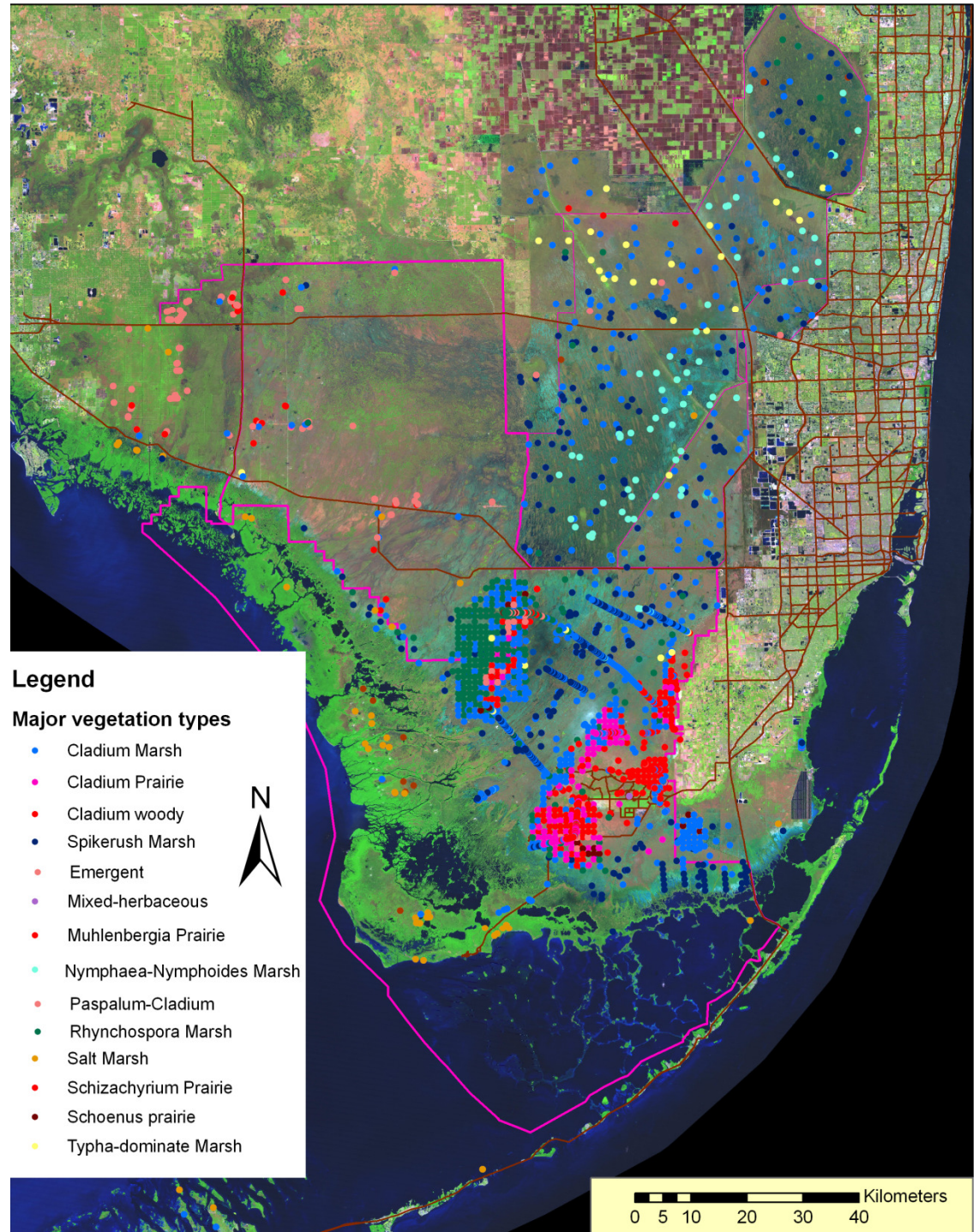


NMS ordination of herbaceous sites (3,515 Marsh Sites & 448 Species)



- | | | | |
|--|------------------------------|-------------------------|----------------------------|
| ◇ Muhlenbergia-Schizachyrium-Cladium Prairie | △ Schoenus Prairie | ◆ Cladium-mixed Prairie | ■ Paspalum-Cladium Prairie |
| ◆ Cladium Marsh | + Cladium (woody) marsh | * Typha-Salix | ◇ Cladium-mixed Marsh |
| ◇ Eleocharis elongata Marsh | △ Eleocharis cellulosa Marsh | ● Nymphaea-Nymphoides | ◇ Rhynchospora Marsh |
| △ Andropogon-Typha-Ludwigia | ◆ Ludwigia microcarpa | △ Andropogon | ◇ Mikania |
| ◇ Bacopa-Pontederia | △ Sagittaria lancifolia | + Panicum hemitomon | * Typha-dominated |
| | | ● Ludwigia repens | △ Spartina |
| | | | ◇ Eleocharis Utricularia |

Spatial Distribution of Herbaceous vegetation types



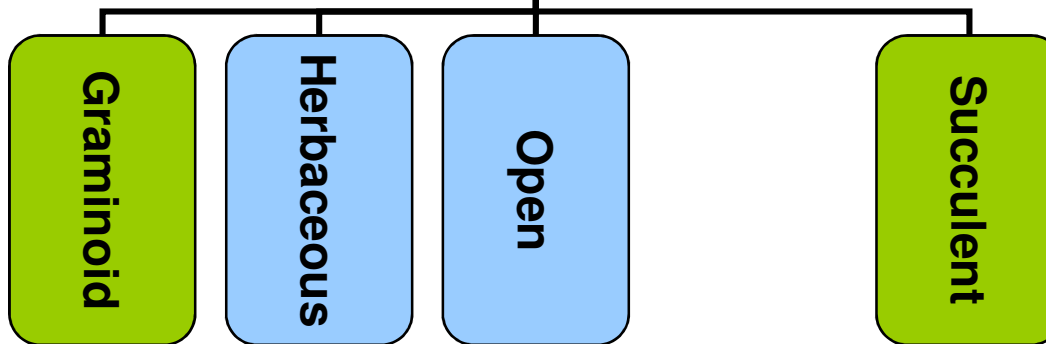
5. Marsh (Salt marsh)

Rutchey et al.

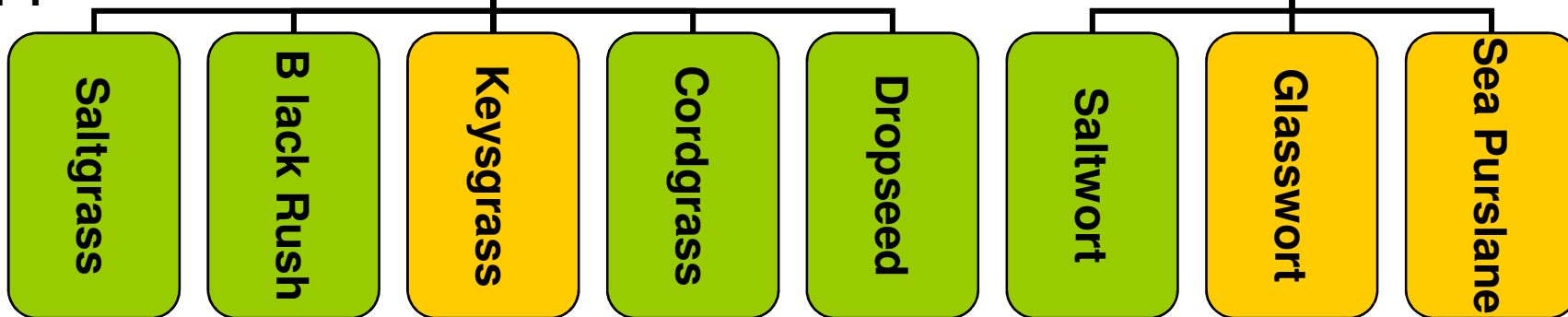
Level 2



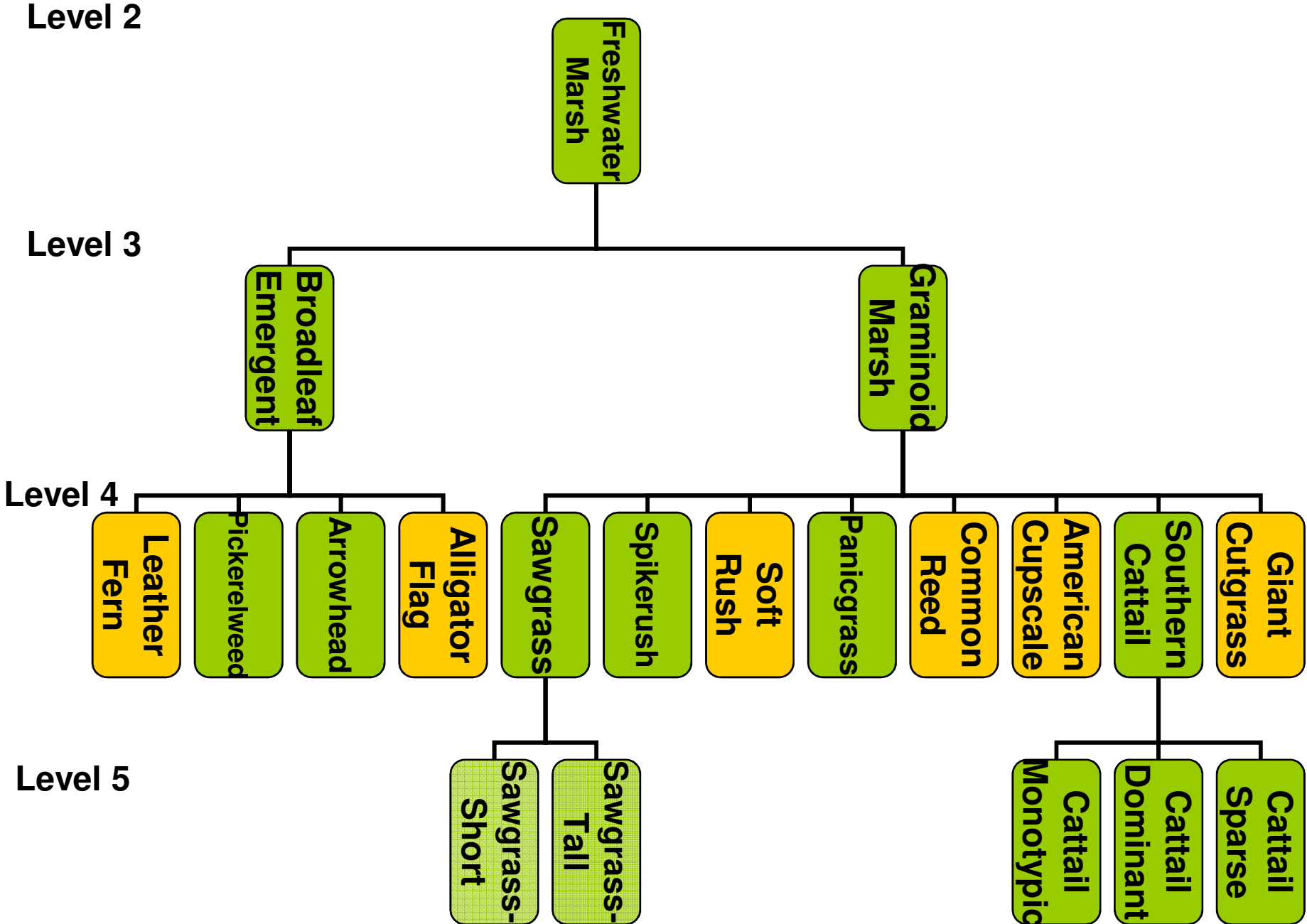
Level 3



Level 4



5. Marsh (Freshwater-a)



5. Marsh (Freshwater-b)

Level 2

Freshwater Marsh

Ludwigia repens

Ludwigia microcarpa

Bacopa monnieri

Bacopa caroliniana

Level 3

Graminoid Prairie

Floating Emergent

Herbaceous

Open Marsh

Open Prairie

Andropogon virginicus

Level 4

Sawgrass

Sawgrass-Muhly

Sawgrass-Paspalum-Little Bluestem

Sawgrass-Beakrush

Muhly Grass

Little Bluestem

Black Sedge

Duckweed

Sppaterdock

Waterlily

Water Spangles

Water Hemlock

Morning Glory

Hempvine

Smartweed

Acknowledgements

- **National Park Service - South Florida/ Caribbean Network (NPS-SFCN)**
- **Dataset Authors**
- **South Florida Terrestrial Ecosystem Lab (SOFTTEL - FIU) Crews**

A dark, atmospheric photograph of a forest. The scene is filled with tall, slender, vertical tree trunks that create a strong sense of depth and perspective. The ground is covered in a mix of brown pine needles, fallen twigs, and some green grasses. The lighting is dim, suggesting a late afternoon or early morning setting, with a soft, hazy light filtering through the canopy. The overall mood is quiet and somewhat somber.

Thank you