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Lygodium microphyllum presence and prevalence in WCA-3

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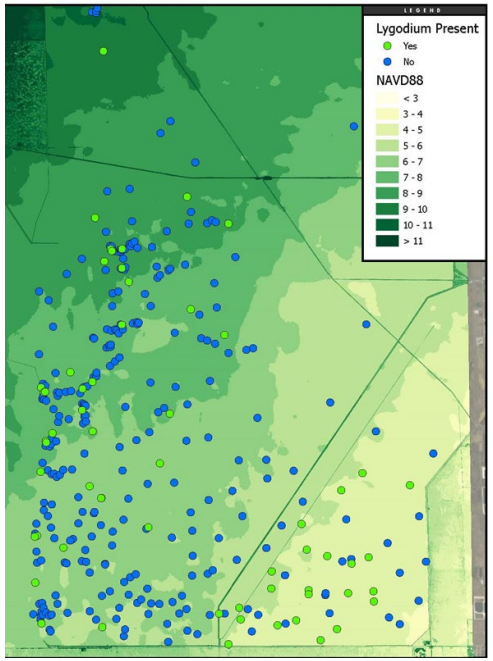
Background

- *Lygodium microphyllum* (Old World climbing fern) poses a significant threat to tree islands. It can climb into tree canopies and smother both canopy and understory plant communities.

Monitoring Objectives

1. Identify the extent of *L. microphyllum* in WCA-3

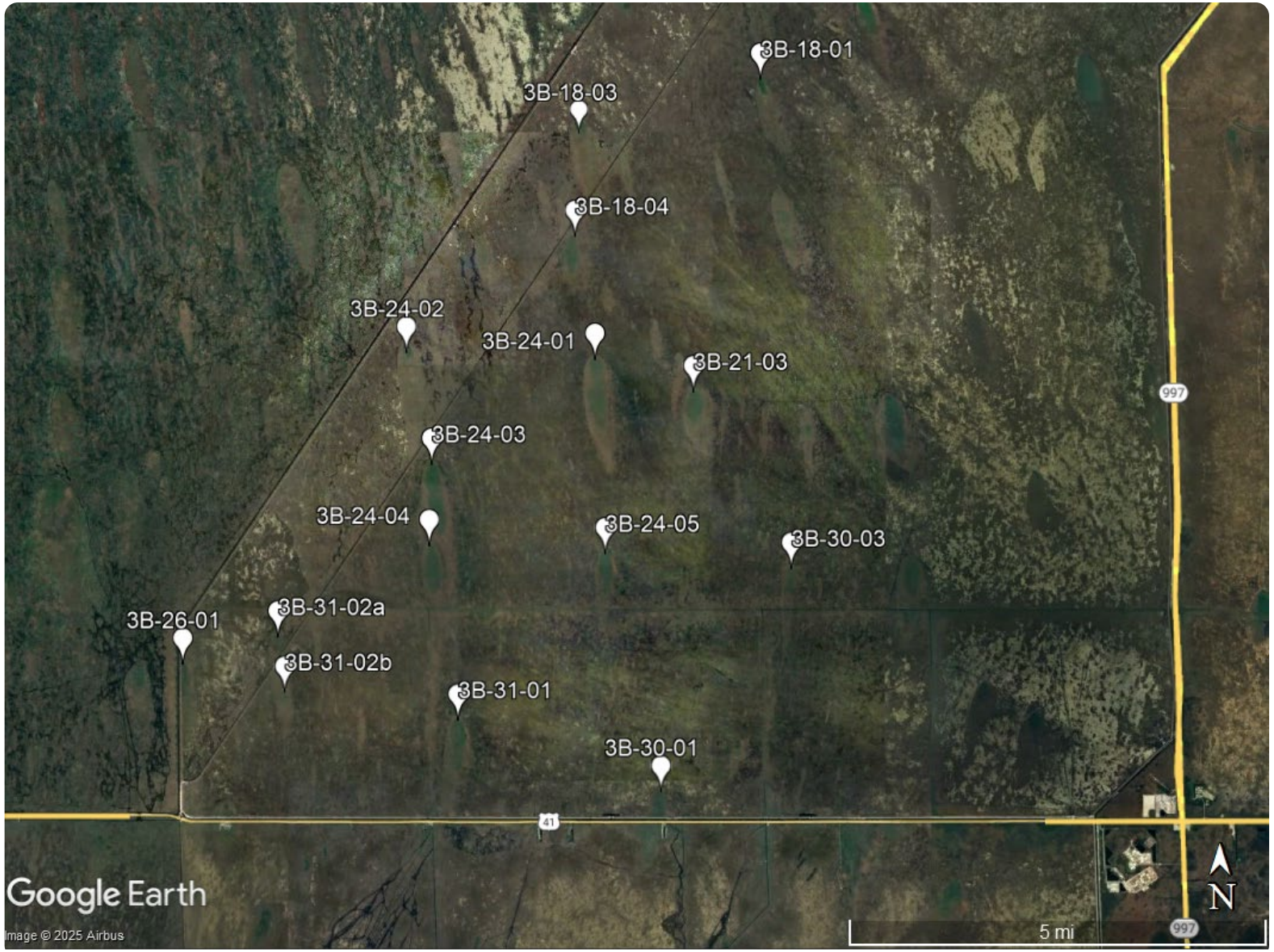


2. Study the ecological and hydrological drivers contributing to the presence of *L. microphyllum* on tree islands

3. Assess determinants of persistence after treatment

2022/2023 Surveys

- 15 tree islands surveyed in WCA-3B and the pocket
- 249 treated populations re-visited
- 20 new populations identified



Data Summary

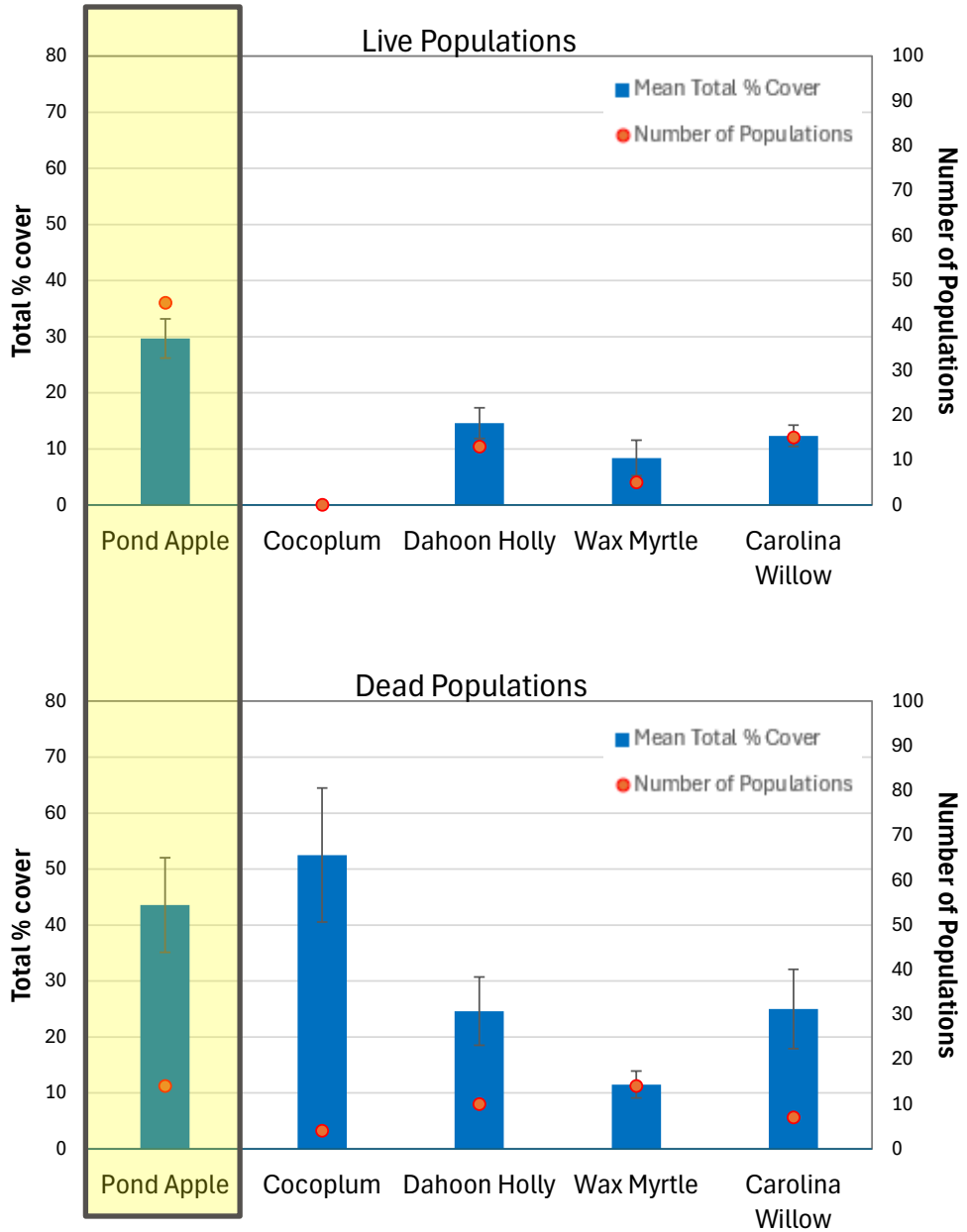
Key Ecological Data:

- Canopy species
- Herbaceous species
- Rooting substrate
- Hydrology

Island	Number and Status of *L. microphyllum* Populations Surveyed					
	New Live Plants	Resprouting Plants	Survived Plants	Dead	No Longer Present	Total Re-surveyed
3B-18-01	4	1	18	3	6	28
3B-18-03	0	0	0	1	2	3
3B-18-04	0	6	0	14	5	25
3B-21-03	0	0	2	0	1	3
3B-24-01	0	0	1	3	11	15
3B-24-02	1	0	3	0	1	4
3B-24-03	1	0	0	1	7	8
3B-24-04	5	0	10	1	11	22
3B-24-05	0	11	0	3	11	25
3B-26-01	1	1	1	1	1	4
3B-30-01	2	0	5	0	14	19
3B-30-03	0	0	4	5	22	31
3B-31-01	3	7	4	2	8	21
3B-31-02A	3	8	0	11	10	29
3B-31-02B	0	1	0	4	7	12
Summary:	20	35	48	49	117	249
Percentage:		**14%**	**19%**	**20%**	**47%**	**100%**

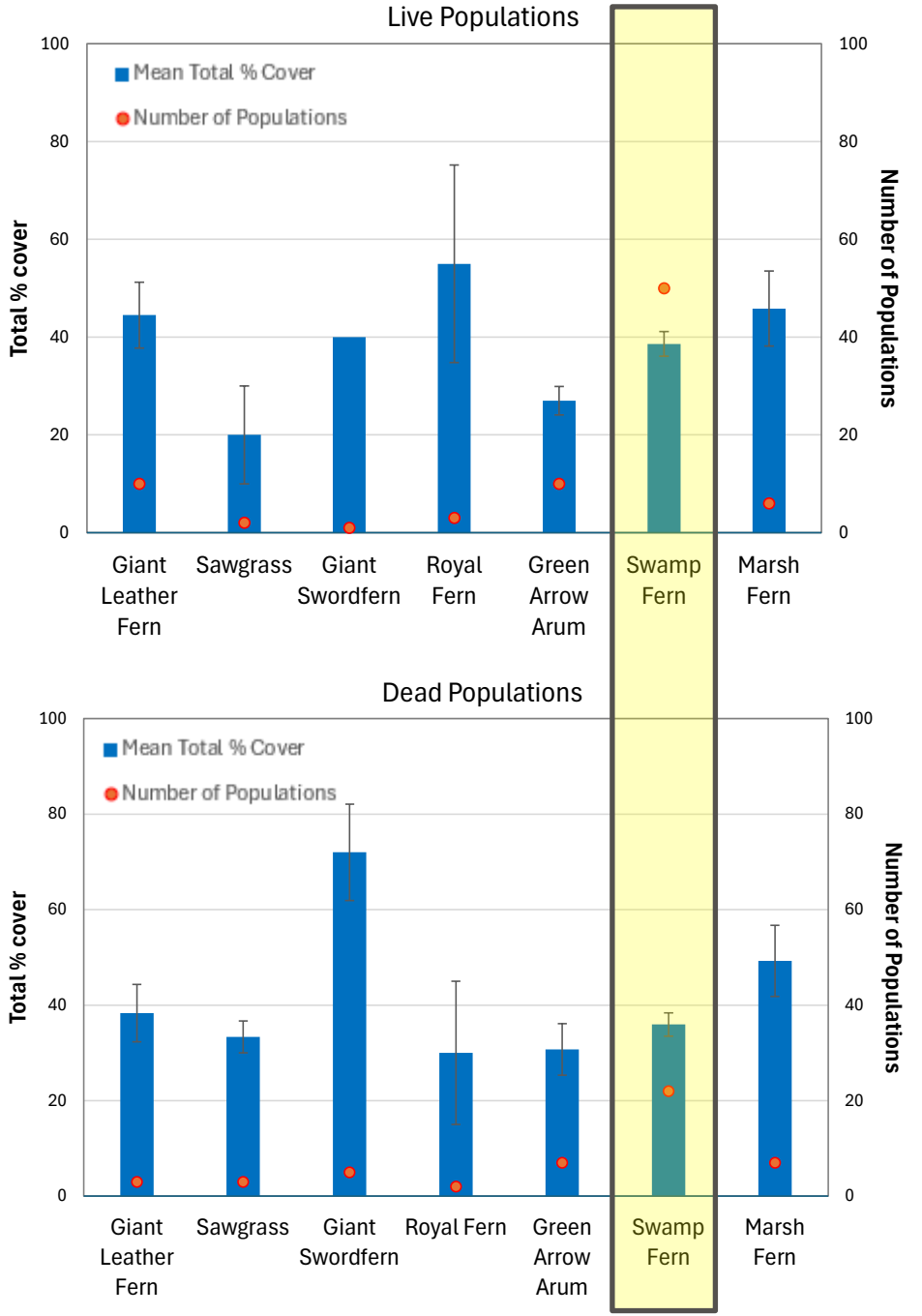
Canopy

- Pond apple (*Annona glabra*) was the dominant canopy species associated with *L. microphyllum* populations

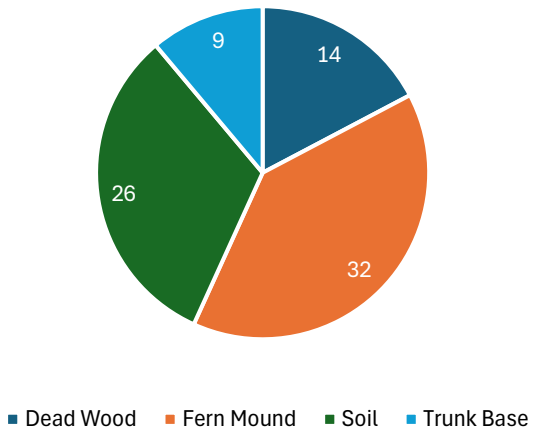


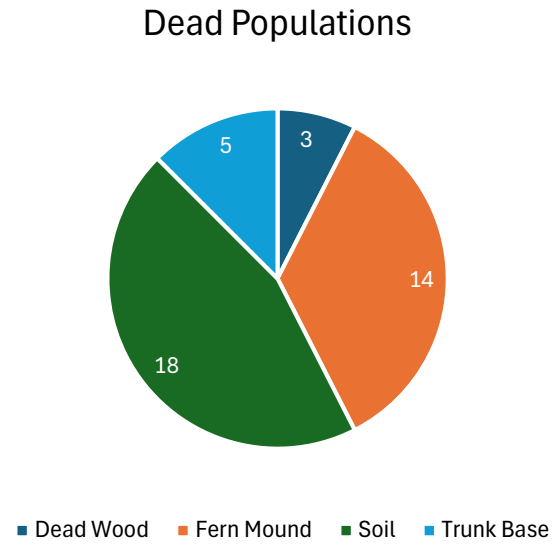
Herbaceous

- Swamp fern (*Telmatoblechnum serrulatum*) was the dominant herbaceous species associated with *L. microphyllum* populations

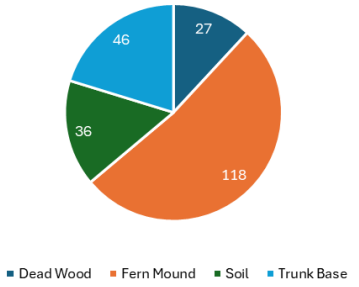


Substrate



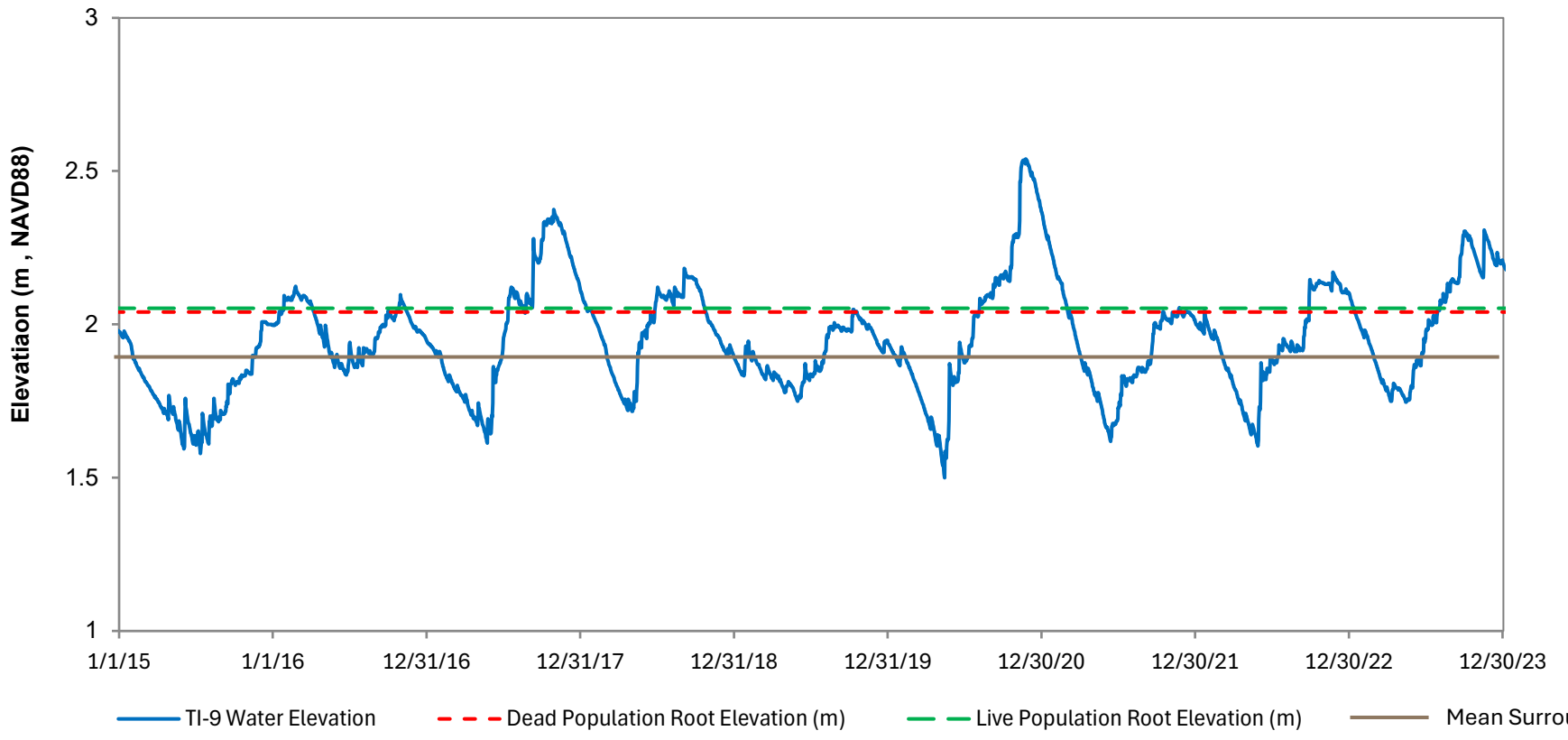


2021 Report



- Most common substrates were fern mounds and soil for both live and dead populations

Hydrology


Elevatiaon (m , NAVD88)
3
2.5
2
1.5
1
1/1/15
1/1/16
12/31/16
12/31/17
12/31/18
12/31/19
12/30/20
12/30/21
12/30/22
12/30/23
TI-9 Water Elevation
Dead Population Root Elevation (m)
Live Population Root Elevation (m)
Mean Surrounding Area Elevation (m)

Geographic Distribution

- There was no geographic pattern in the distribution of live and dead populations

Conclusion

- *L. microphyllum* establishes in areas with moderate canopy cover and wet but not permanently inundated conditions
- *L. microphyllum* spores are opportunistic, and can germinate on a variety of substrates depending on water level and inundation duration

Additional Considerations

- Treatment year
- Type and quantity of herbicide applied
- Size of population pre-treatment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Thank you