Using Remote Sensing to Detect Nectar Resources Along Transportation ROWs in Florida

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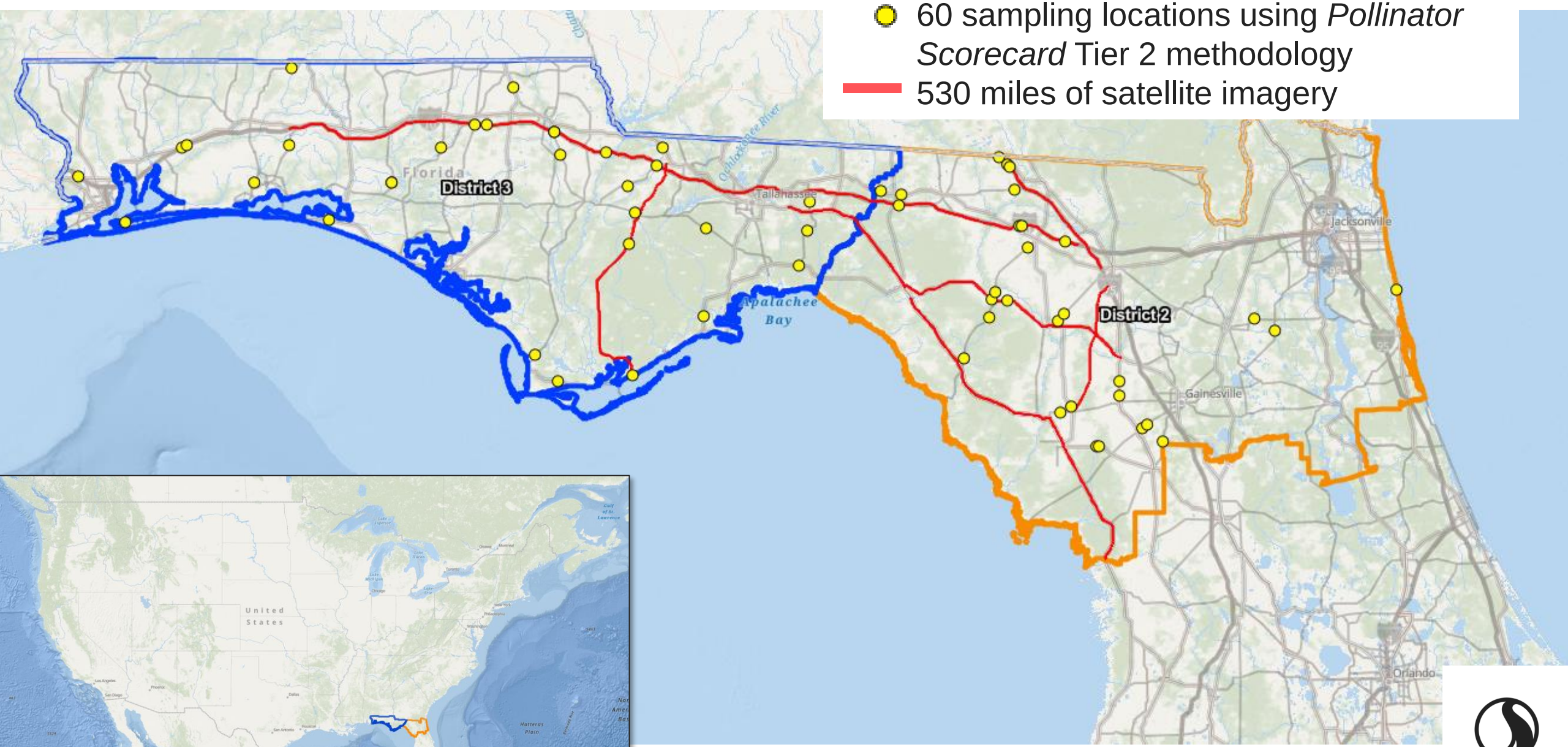
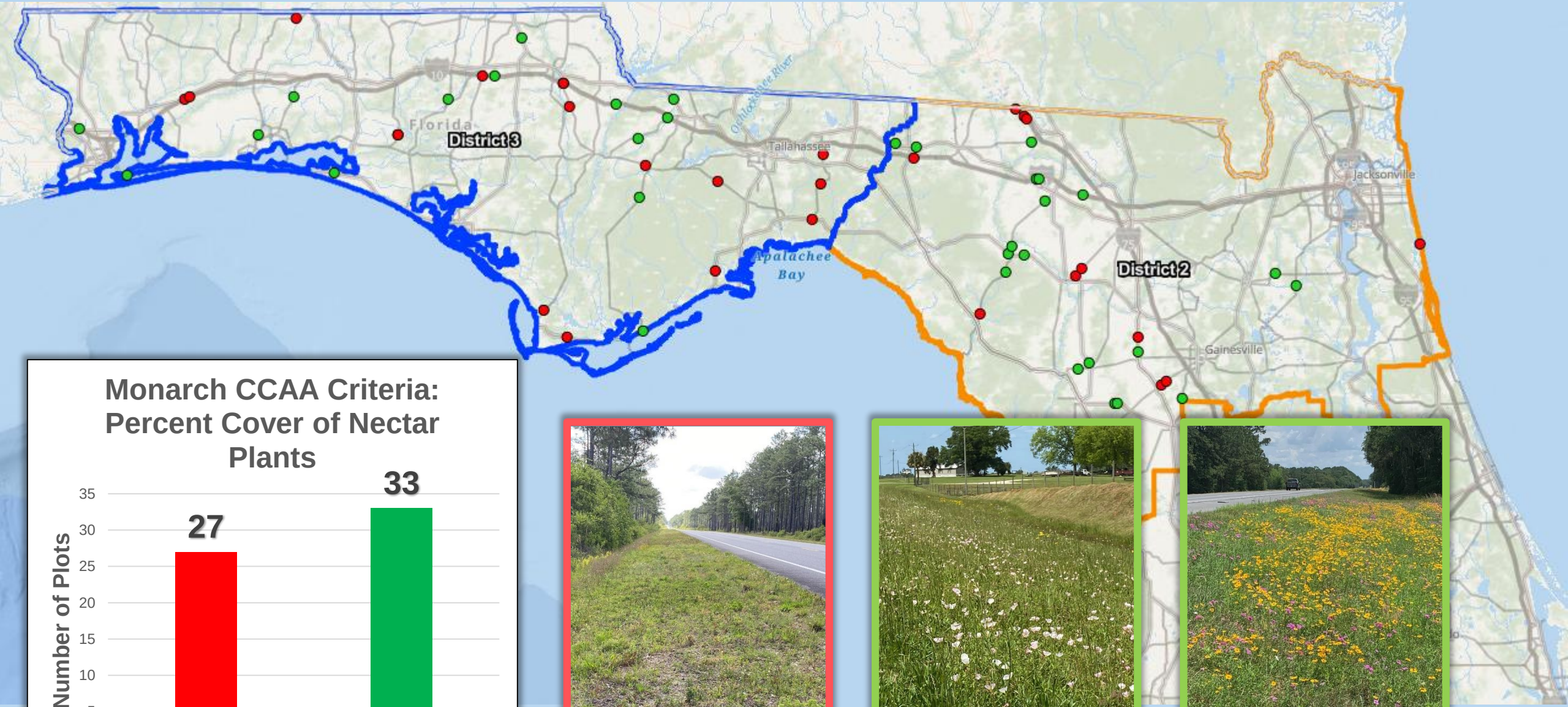
Using Remote Sensing to Identify Monarch Butterfly Habitat in Florida

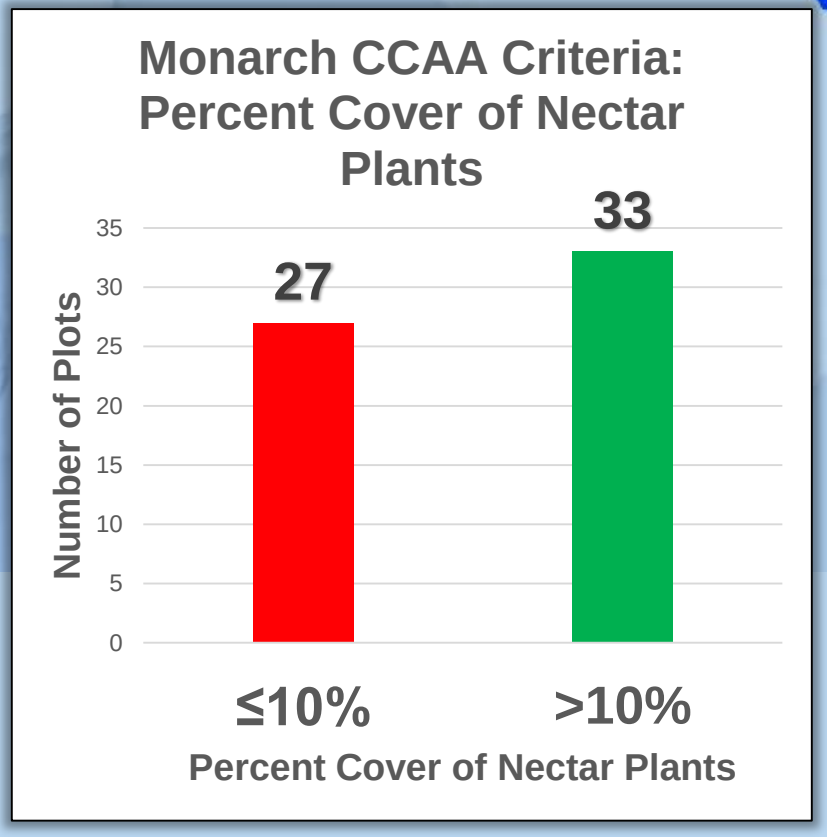
Stantec FDOT

FDOT Spring 2022 Monitoring

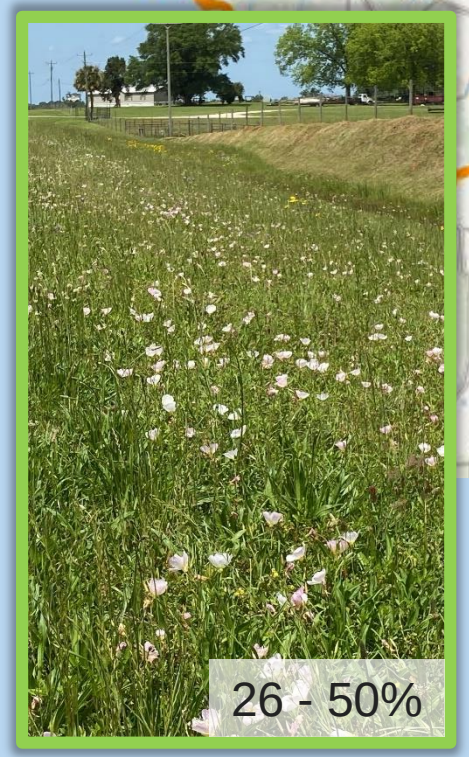
- 60 sampling locations using *Pollinator Scorecard* Tier 2 methodology
- 530 miles of satellite imagery




District 3
District 2
Tallahassee
Jacksonville
Gainesville
Apalachee Bay
Florida


Monarch CCAA Criteria:
Percent Cover of Nectar Plants
Number of Plots
35
30
25
20
15
10
5
0
27
33
≤10%
>10%
Percent Cover of Nectar Plants


6 - 10%

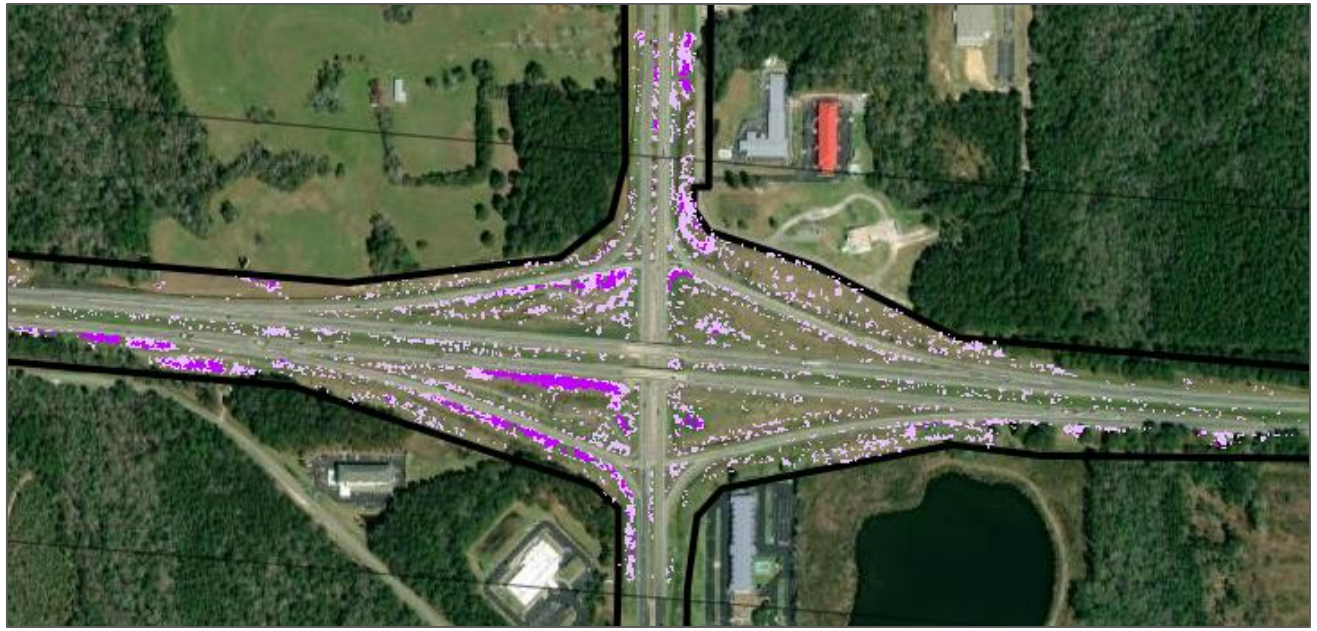

26 - 50%


51 - 75%

Remote Sensing Results

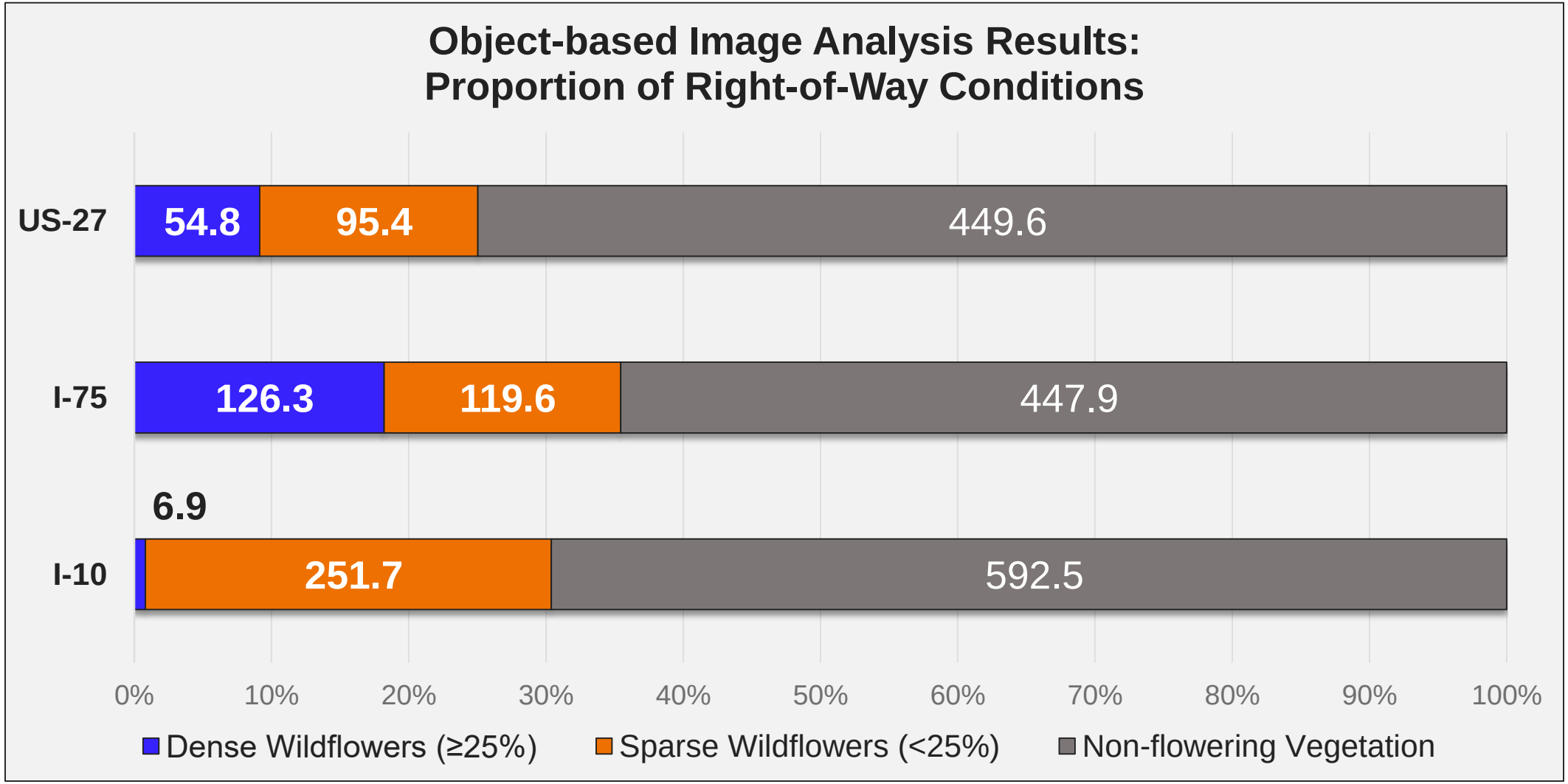
Flower – Dense (25+%)

Flower – Sparse (1 – 24%)



Summary of Remote Sensing Results

Wildflowers made up 25 – 35.4% of vegetation (avg. = 30.5%)



Discussion

Field Sampling

- 60 plots sampled 2.06 acres
- 55% of plots had >10% cover of nectar plants
- No milkweed observed in any plots
- Using a 90% CI, we estimate that vegetated rights-of-way contain at least 18.7% cover of nectar plants

Remote Sensing

- Model analyzed 4,193.1 acres (30% of all imagery)
- 9% of vegetation had **dense** cover of nectar plants (188 ac)
- 22% of vegetation had **sparse** cover of nectar plants (467 ac)

Lessons Learned

- **Benefits**: safer, cost effective, more data
- **Limitations** of satellite imagery and object-based image analysis:
    - Canopy cover
    - Variations in photography (e.g., time of day, gaps)
    - RGB spectrum
- **Improvements** for next time:
    - Land cover analysis
    - More mobile mapping

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