

# Inventory Plot Center Measurement With UAVs

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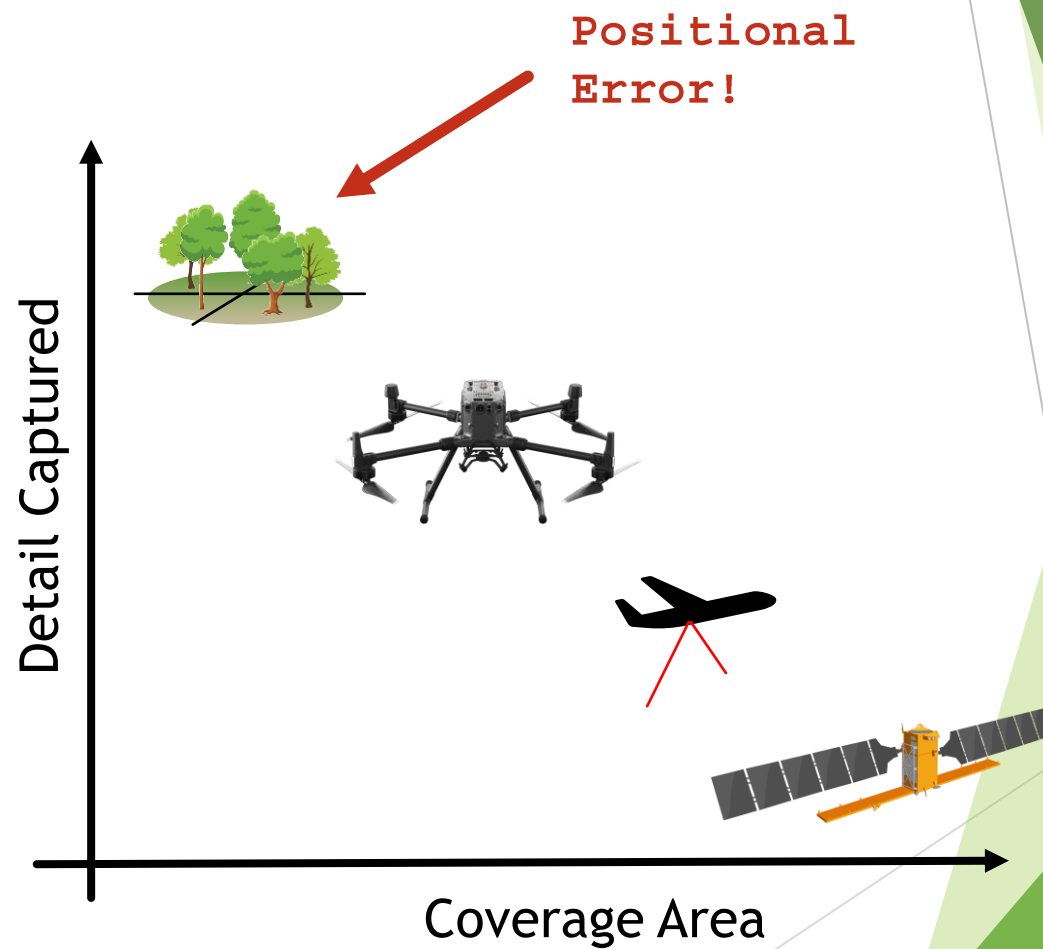
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Civil Engineering - Geomatics





# Problem

- ▶ Problem: Forest inventory plot positional error
- ▶ Input: Ground targets and leaf-off orthoimagery
- ▶ Output: Accurate forest inventory plot centers

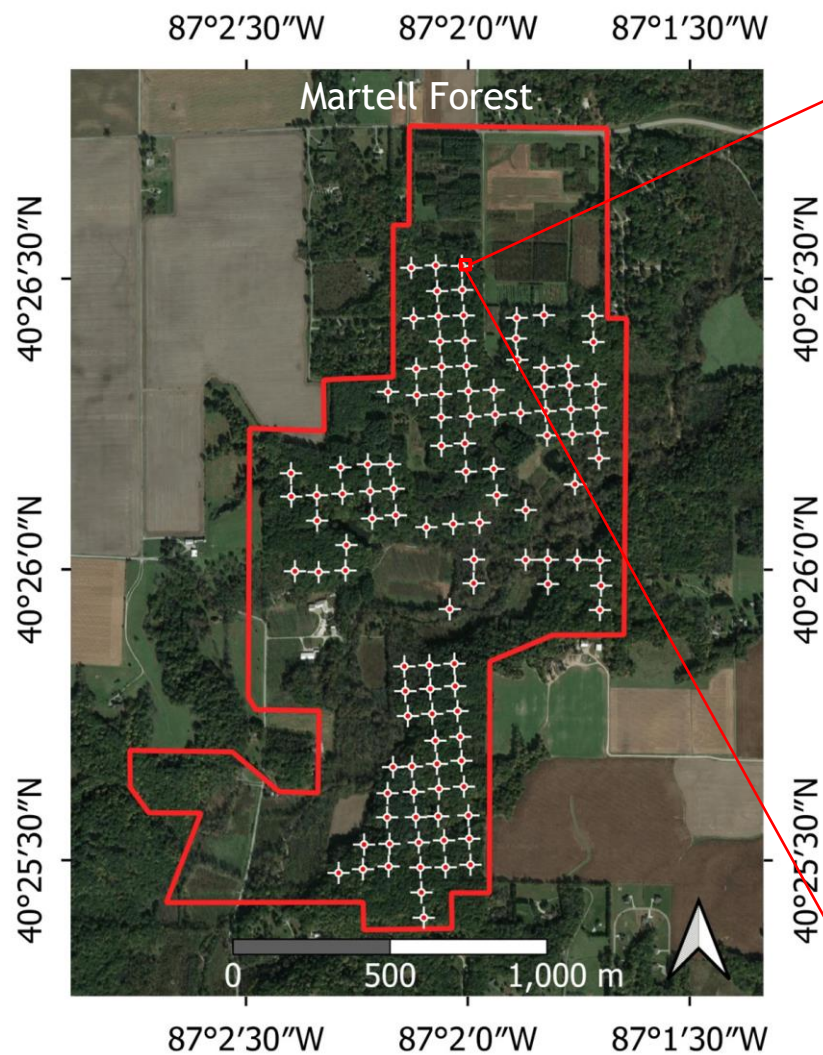




# Solution

## Plot Center Measurement Workflow

- ▶ Place targets at each plot center
- ▶ Collect UAV leaf-off imagery
- ▶ Digitize plot centers



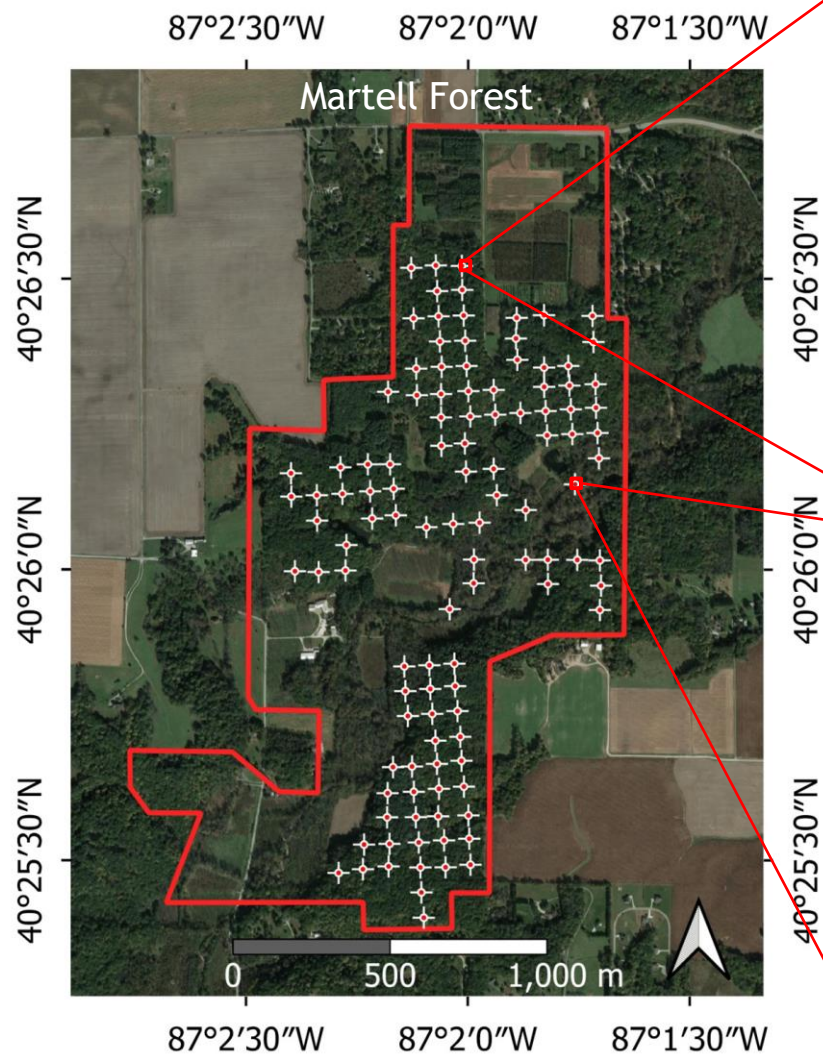
Plot center marked with target



# Solution

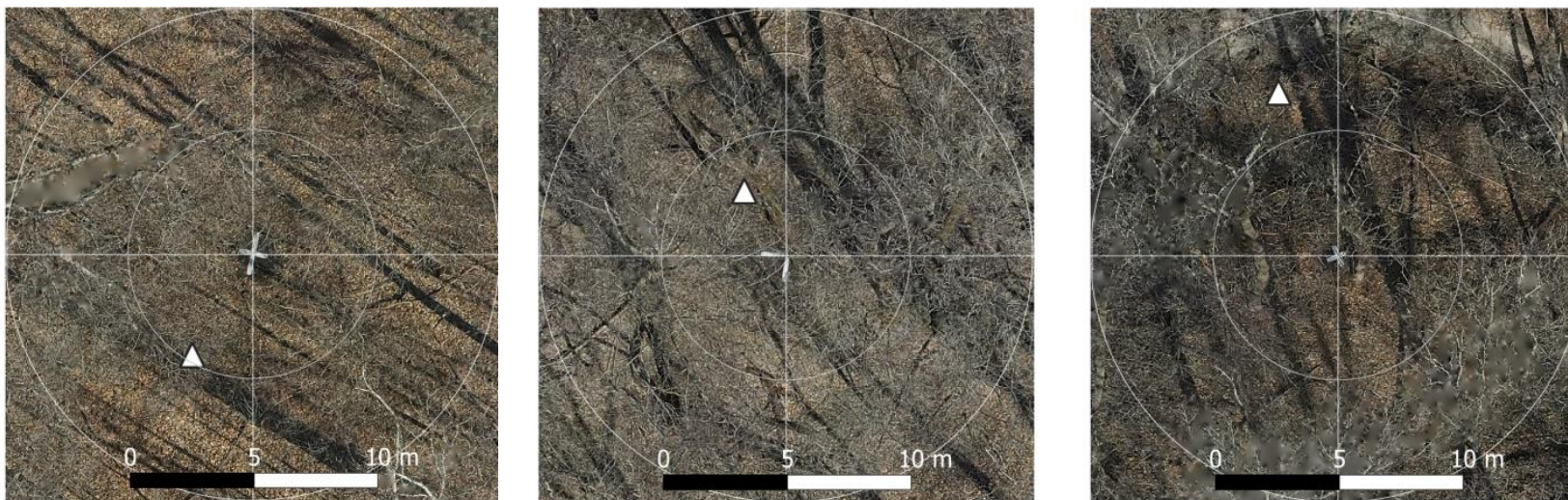
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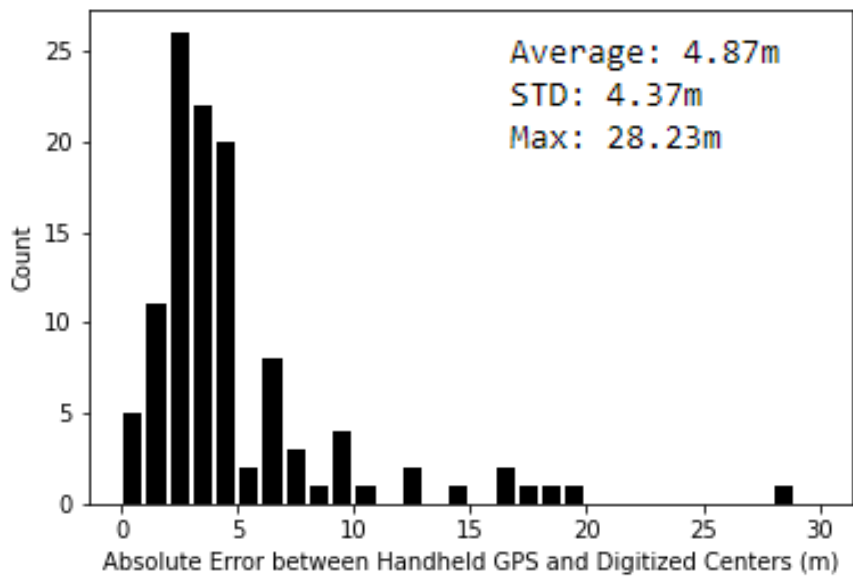




# Results



Comparison of center locations.  $\triangle$  indicate handheld GPS position.



Plot centers used to align TLS data and DTM



# Challenges and Next Steps

## Limitations

- ▶ Requires a leaf-off season
- ▶ Limited to UAV mappable areas
- ▶ Requires a lot of hiking, (target deployment and clean-up)

## Solutions

- ▶ Biodegradable targets