

Using GPS: What You Need to Know



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VT Center for Geographic Information
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Using GPS



- When should you use GPS to collect data?
- Which GPS should you use?
- How will you clean up the data?

When Should You Use GPS?

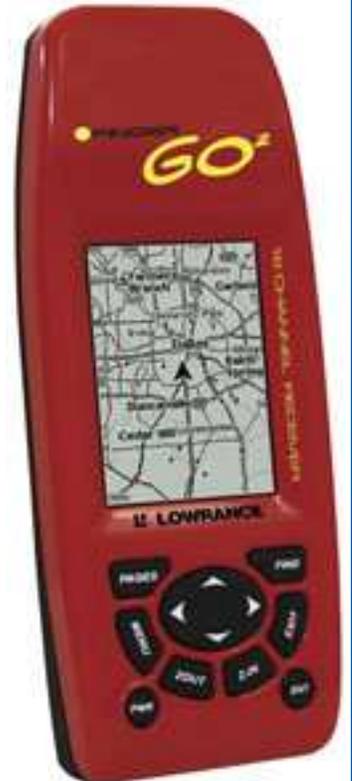
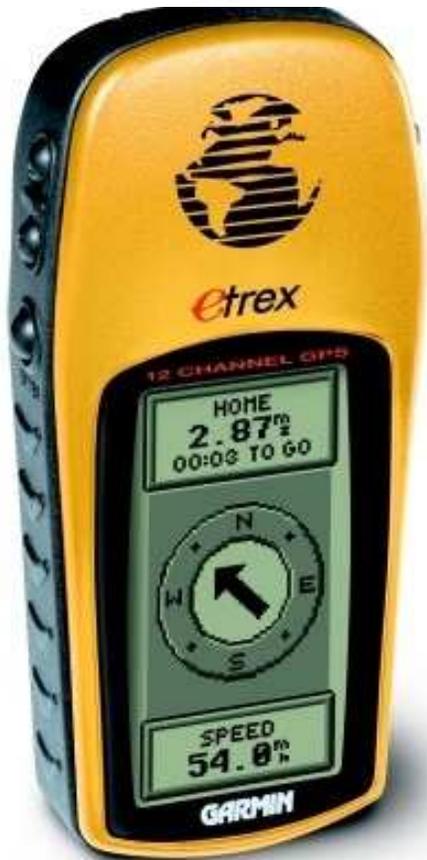
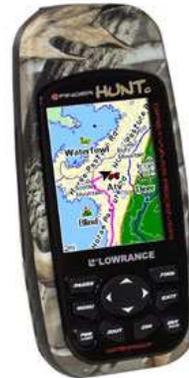


- Features of interest not visible on Orthophoto (or not there due to age of Ortho)
- Need higher accuracy than available on Orthophoto (and have access to mapping grade)
- Can't digitize from Orthophoto (lack of software?)
- Good use of volunteers who want to go outside or need to visit features anyway (attributes)

When Should You NOT Use GPS?

- When unit available is not high enough accuracy
- When relative accuracy is most important
- When you cannot edit/clean up data after collecting (especially trails)
- When you need to collect a lot of attributes along with location

Which GPS Should You Use?



Which GPS Should You Use?

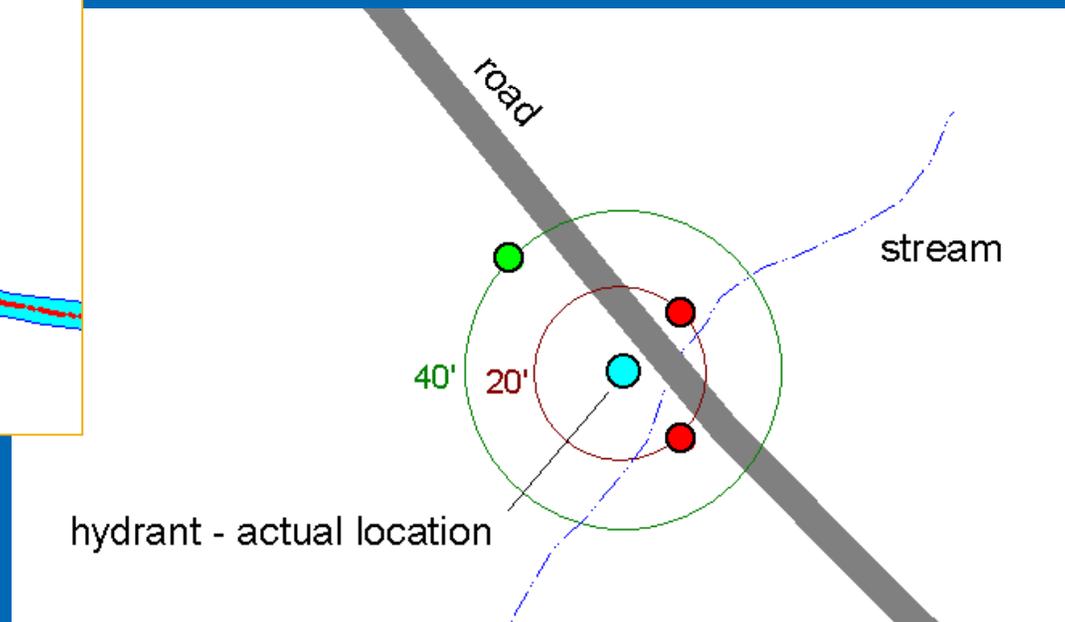
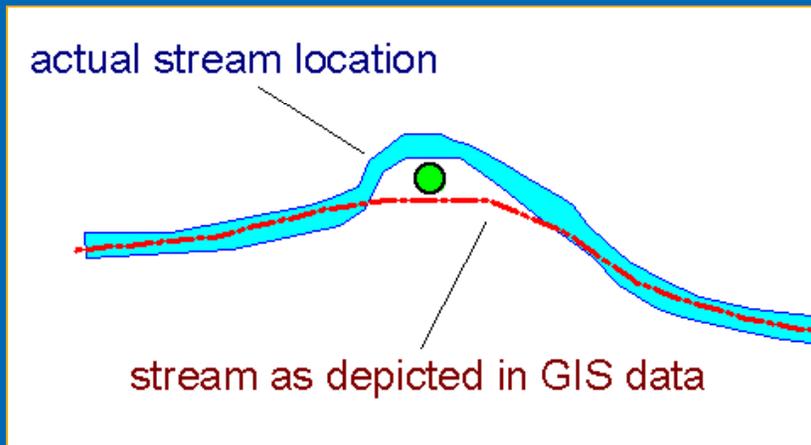
- Consider accuracy of unit vs. accuracy you need
 - Consumer grade ~ 10-30 ft
 - Mapping grade ~ 1-10 ft
- Consider cost
 - Consumer grade ~ \$150 - \$500
 - Mapping grade ~ \$1000 - \$5000
- Consider capacity to enter attribute data

How Will You Clean Up the Data?

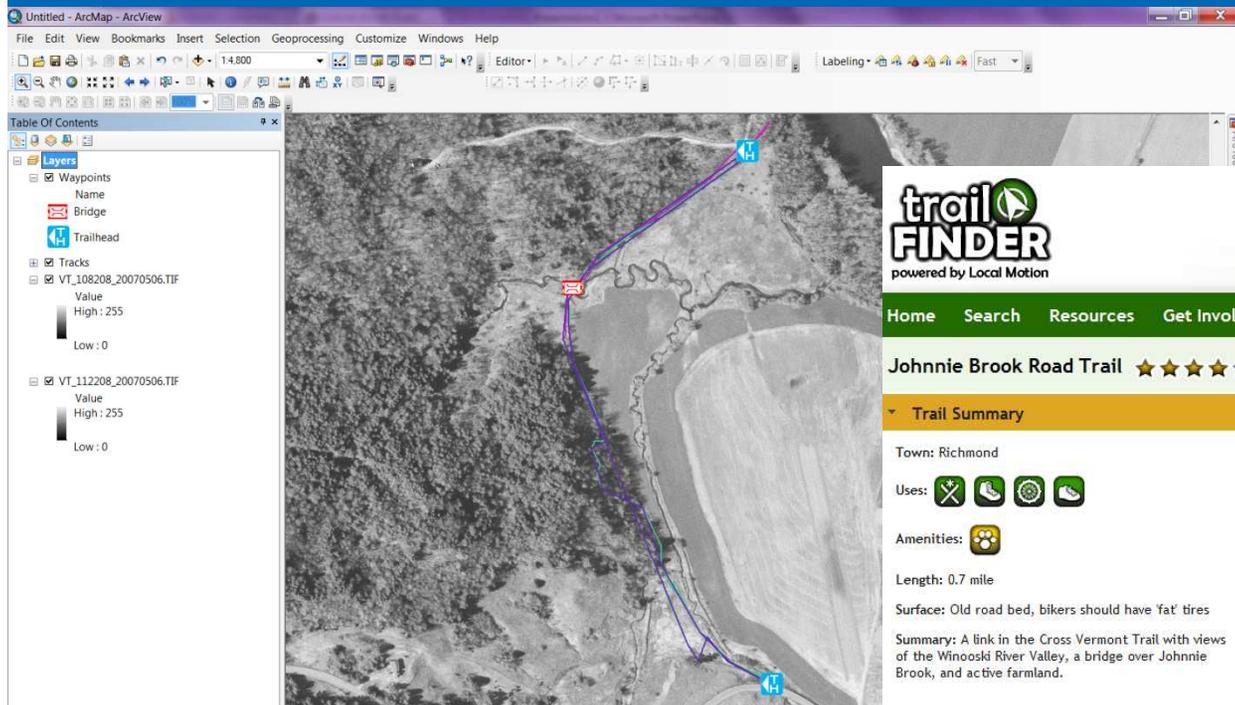
- Examples will show that editing the data is often important to clean up errant zig/zags and points.
 - Do you have access to GIS software?
 - Can someone do this for you?
- Orthophotos and Esite data can be valuable tools to help you pick up on random errors, projection errors, etc.

Examples and Issues

Relative location of a feature to another feature is often more important than each feature's correct location (which side of the stream...)



Data from Inexpensive Handheld GPS Good Example



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Johnnie Brook Road Trail ★★★★★ Like Be the first of your friends to like this.

Trail Summary

Town: Richmond

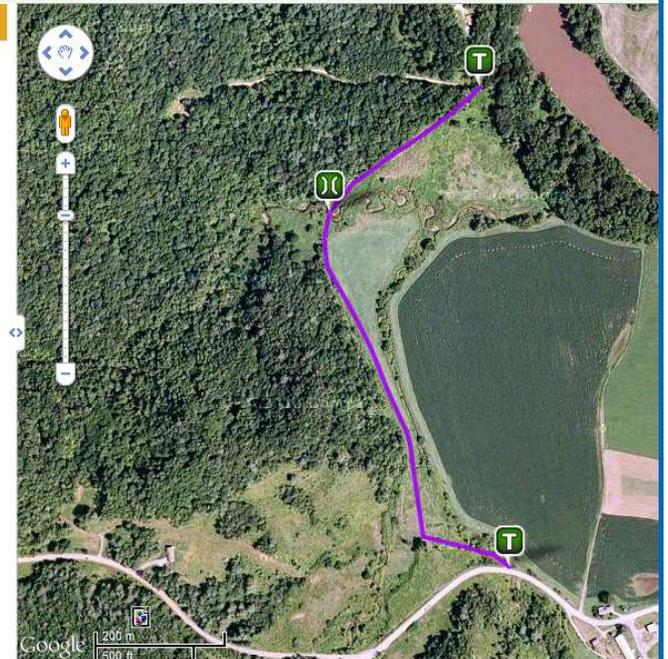


Amenities: 🐾

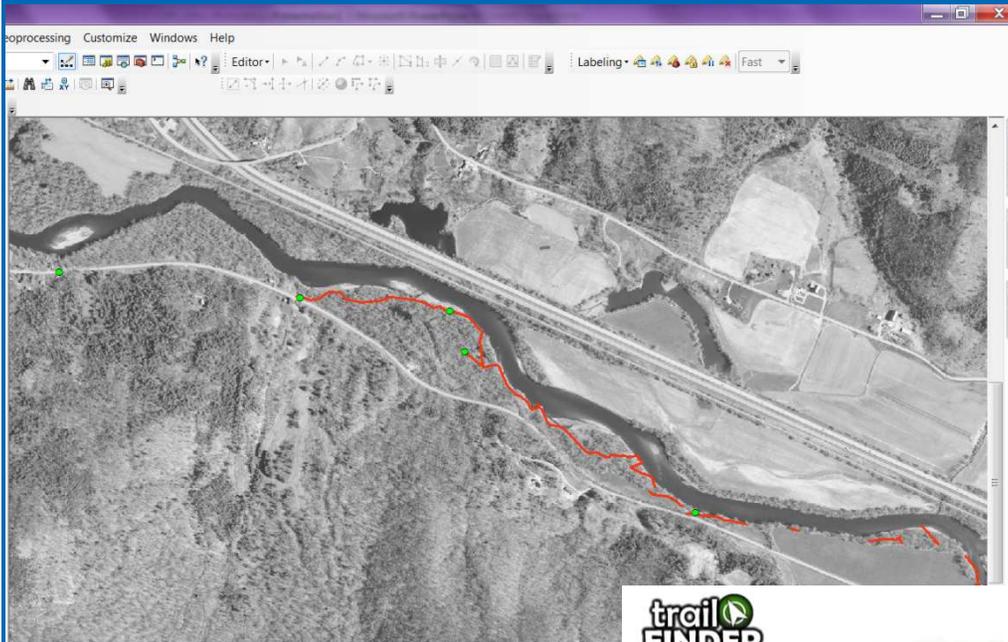
Length: 0.7 mile

Surface: Old road bed, bikers should have 'fat' tires

Summary: A link in the Cross Vermont Trail with views of the Winooski River Valley, a bridge over Johnnie Brook, and active farmland.



Data from Inexpensive Handheld GPS Poor Example



- ❖ Important to differentially correct collected data.
- ❖ Important to quality check and edit all gps'd data.
- ❖ Checking against orthophotos is very helpful.

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Warren and Ruth Beeken Rivershore Trail ★★★★★ [Like](#) Be the first of your friends to like this.

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Trail Summary

Town: Richmond

Uses:

Amenities:

Length: 3 miles

Surface: Packed dirt/single track

Summary: **Note: CLOSED due to wind-fallen trees.**

Spring ephemerals, ostrich ferns, great vistas of the Winooksi River Valley. This trail passes through the longest stretch of riparian forest on the Winooksi. Currently it is under threat from invasive species.



Uses for Mapping grade GPS:

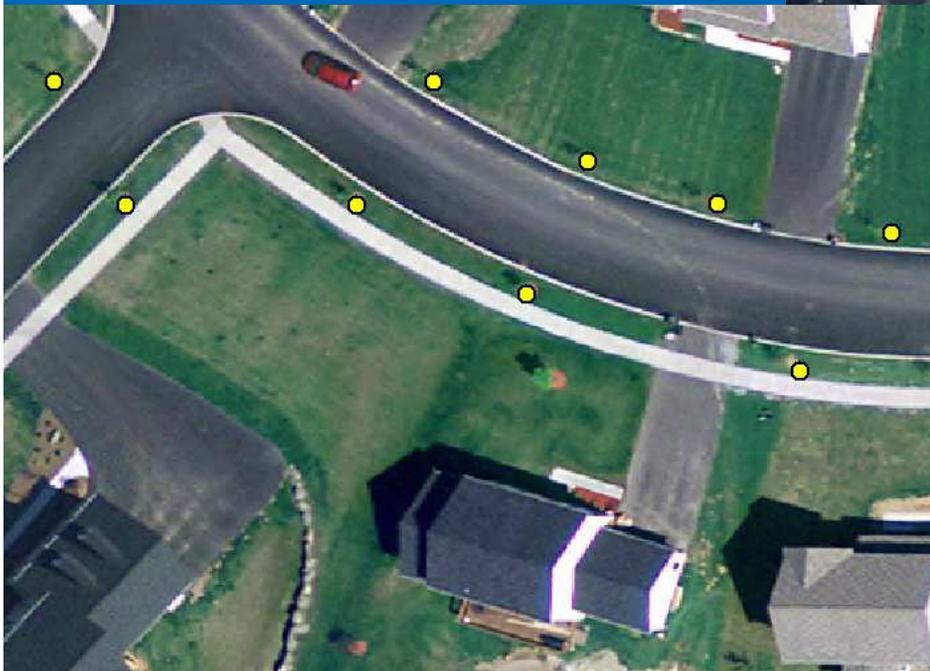
- ❖ Sign inventories
- ❖ Culvert inventories
- ❖ Catchbasins
- ❖ Light poles

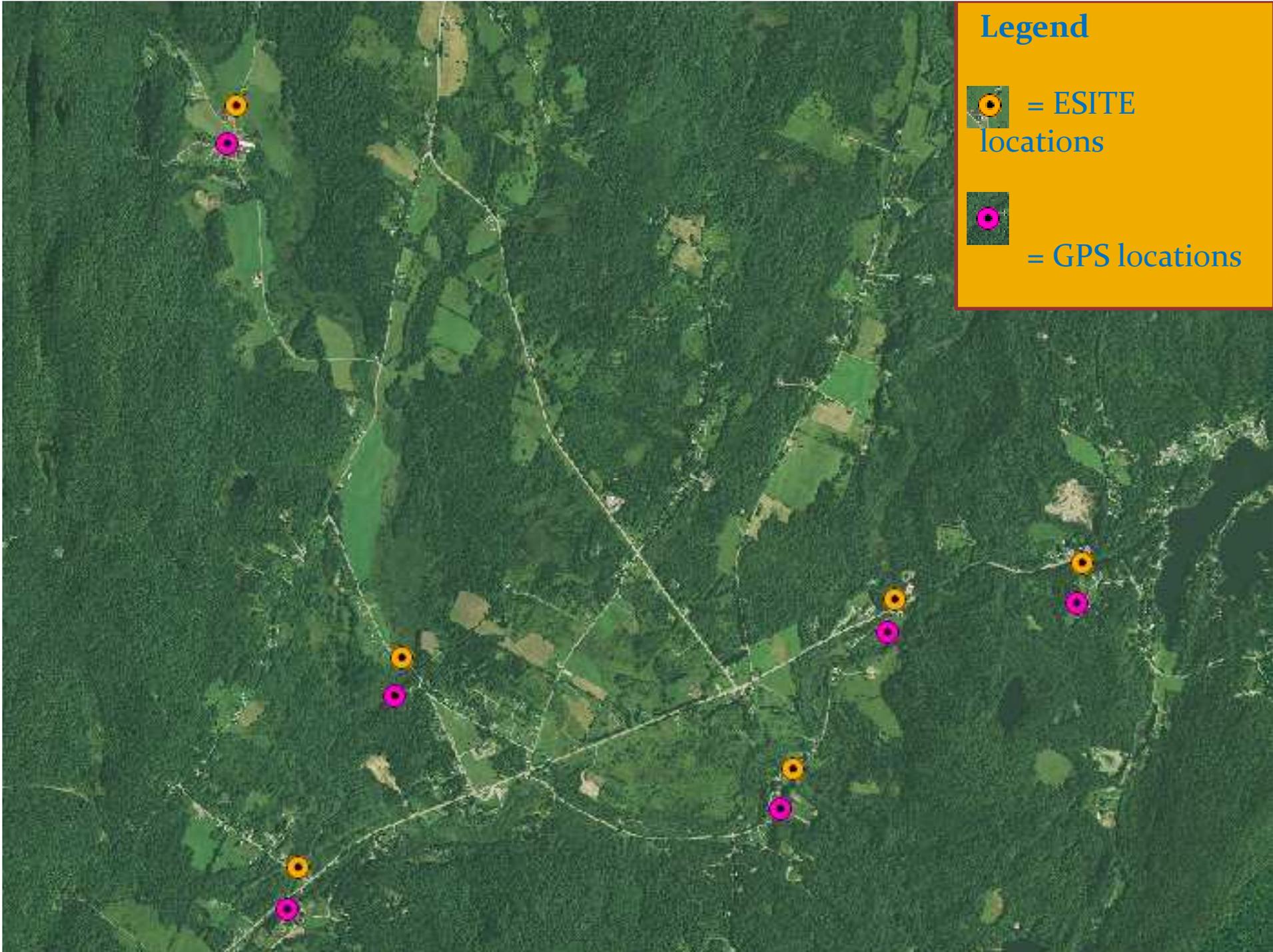


Data dictionary helps collect more than just locational data.

Uses for Handheld GPS:

- ❖ Tree inventories
- ❖ Trails

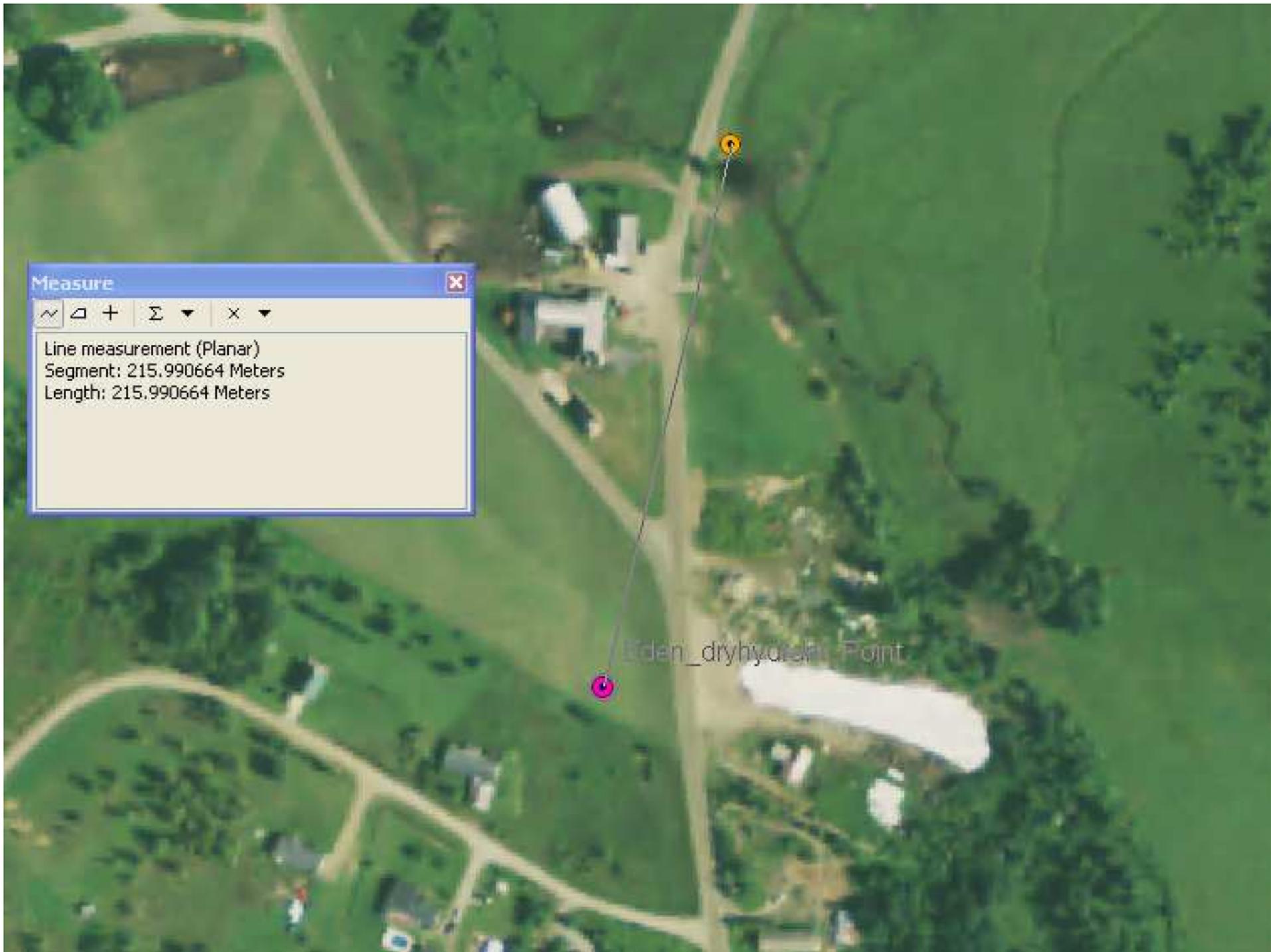




Legend

 = ESITE locations

 = GPS locations

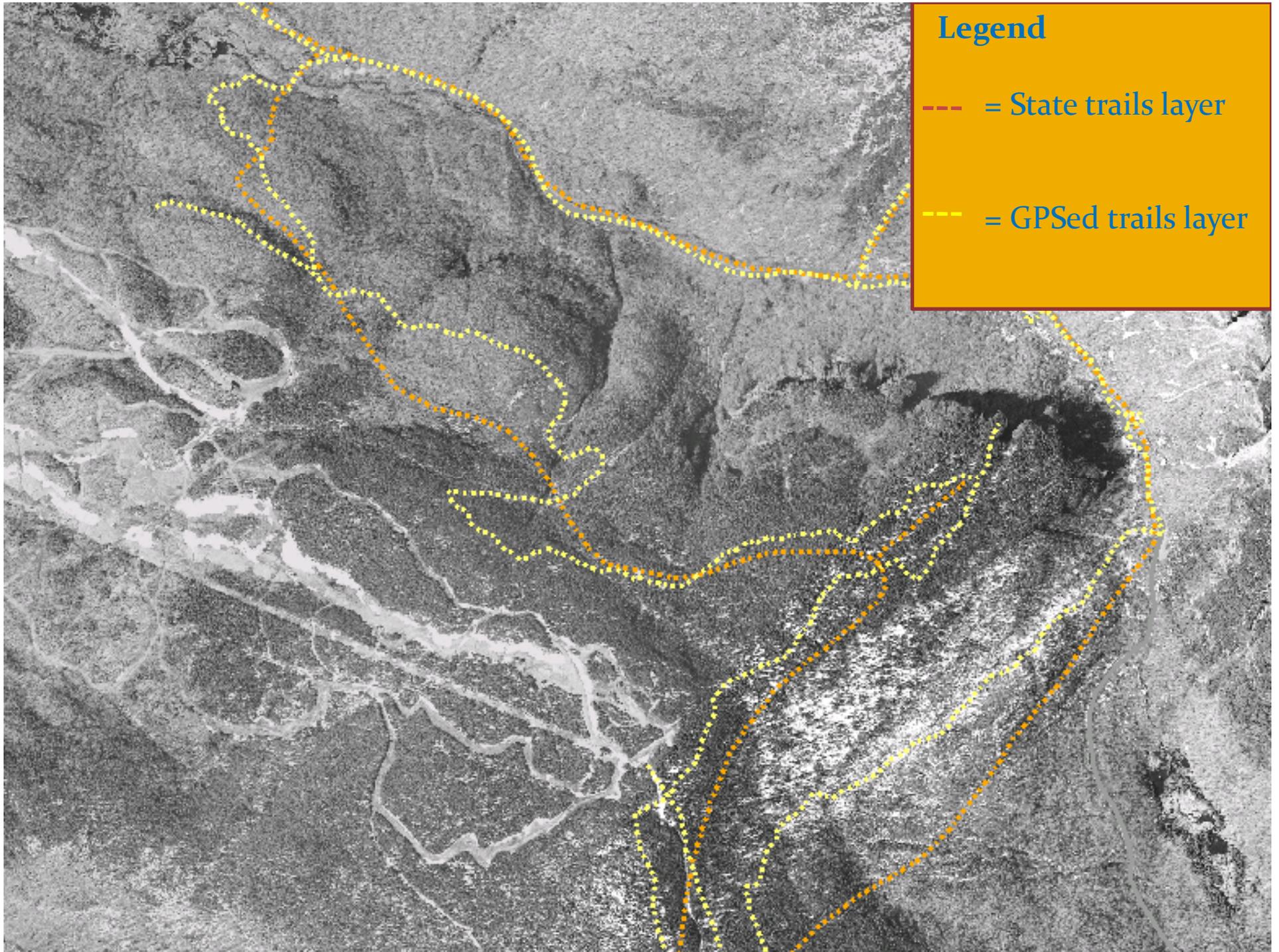


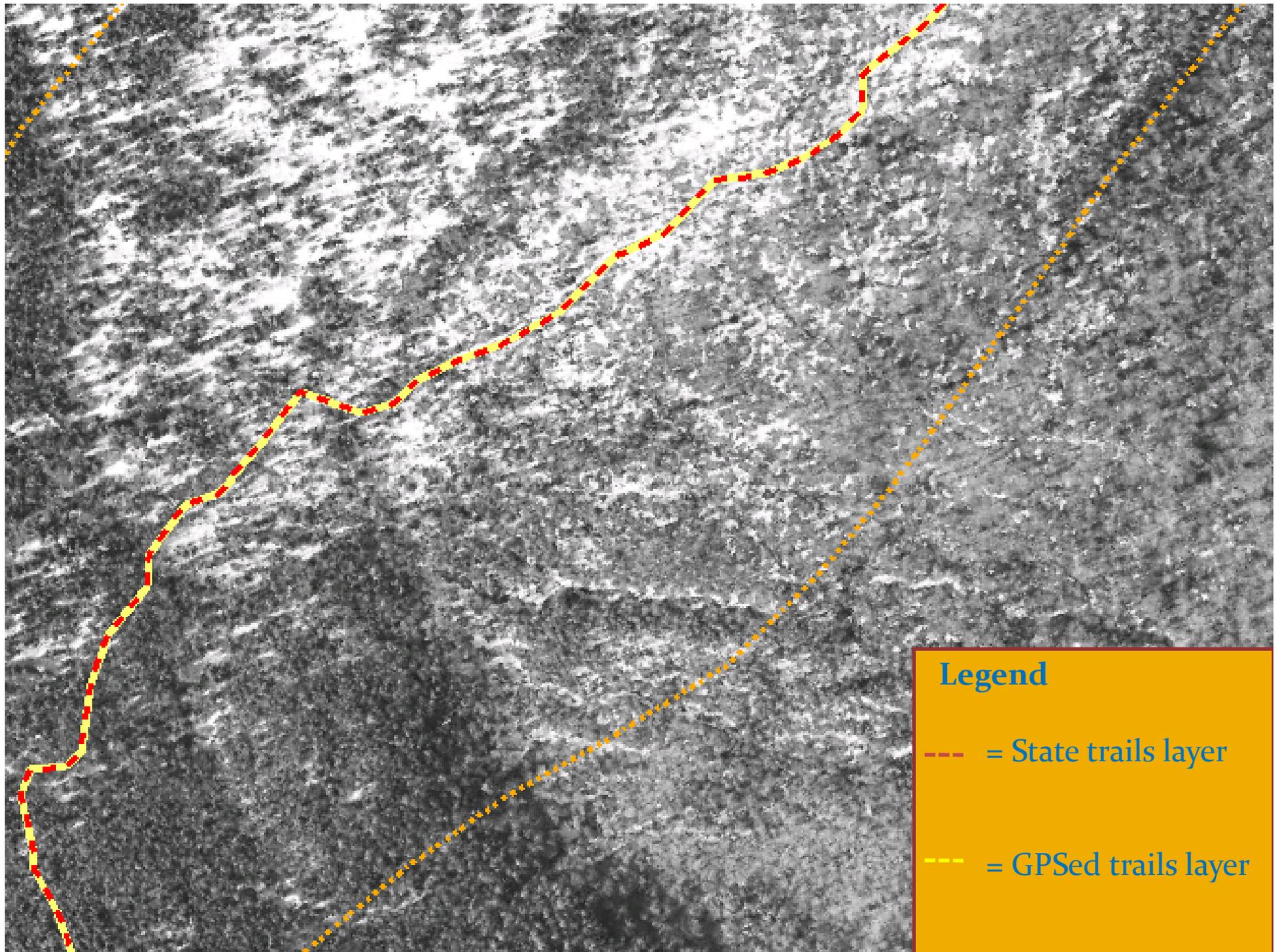
Measure

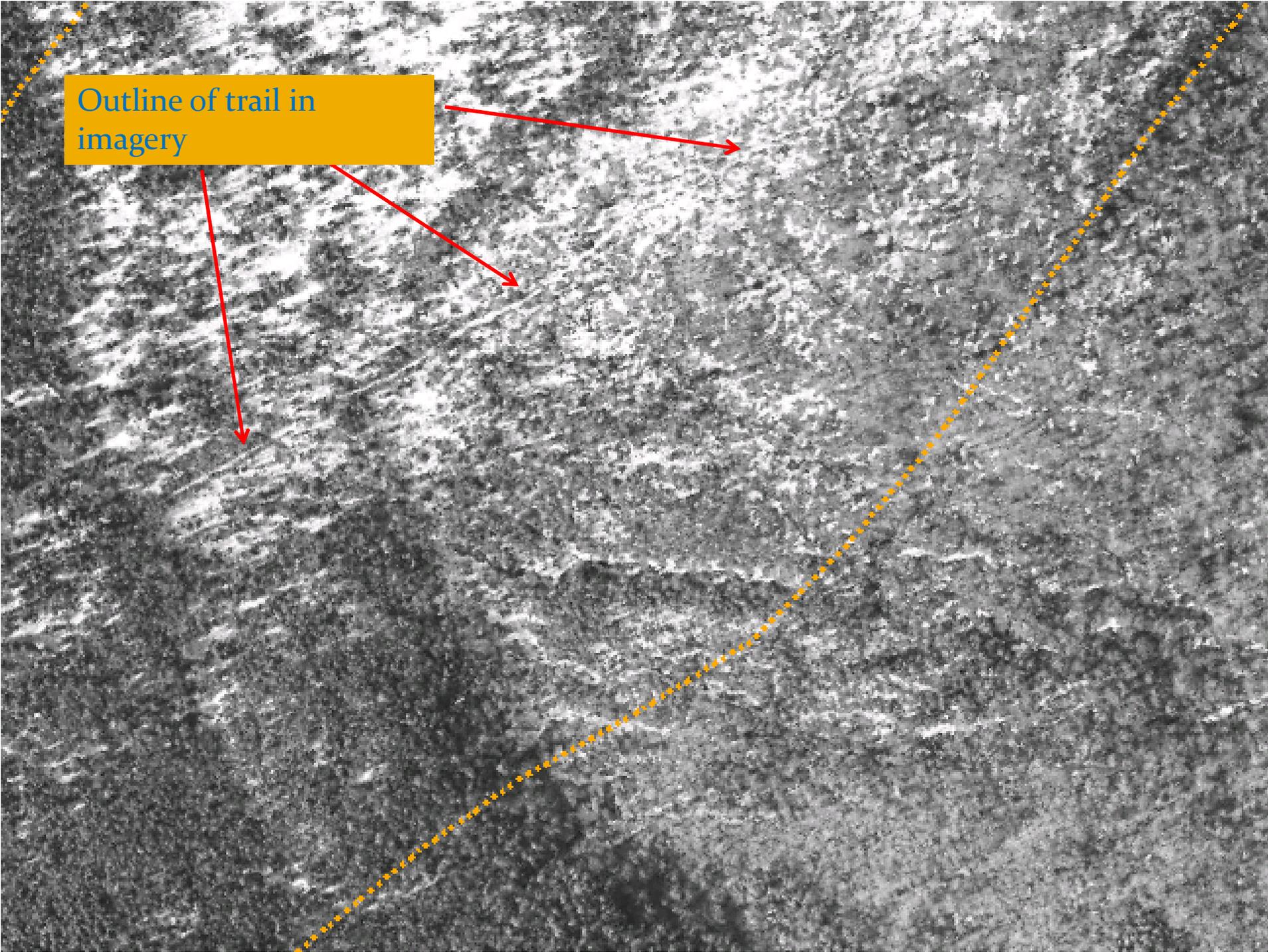
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Line measurement (Planar)
Segment: 215.990664 Meters
Length: 215.990664 Meters

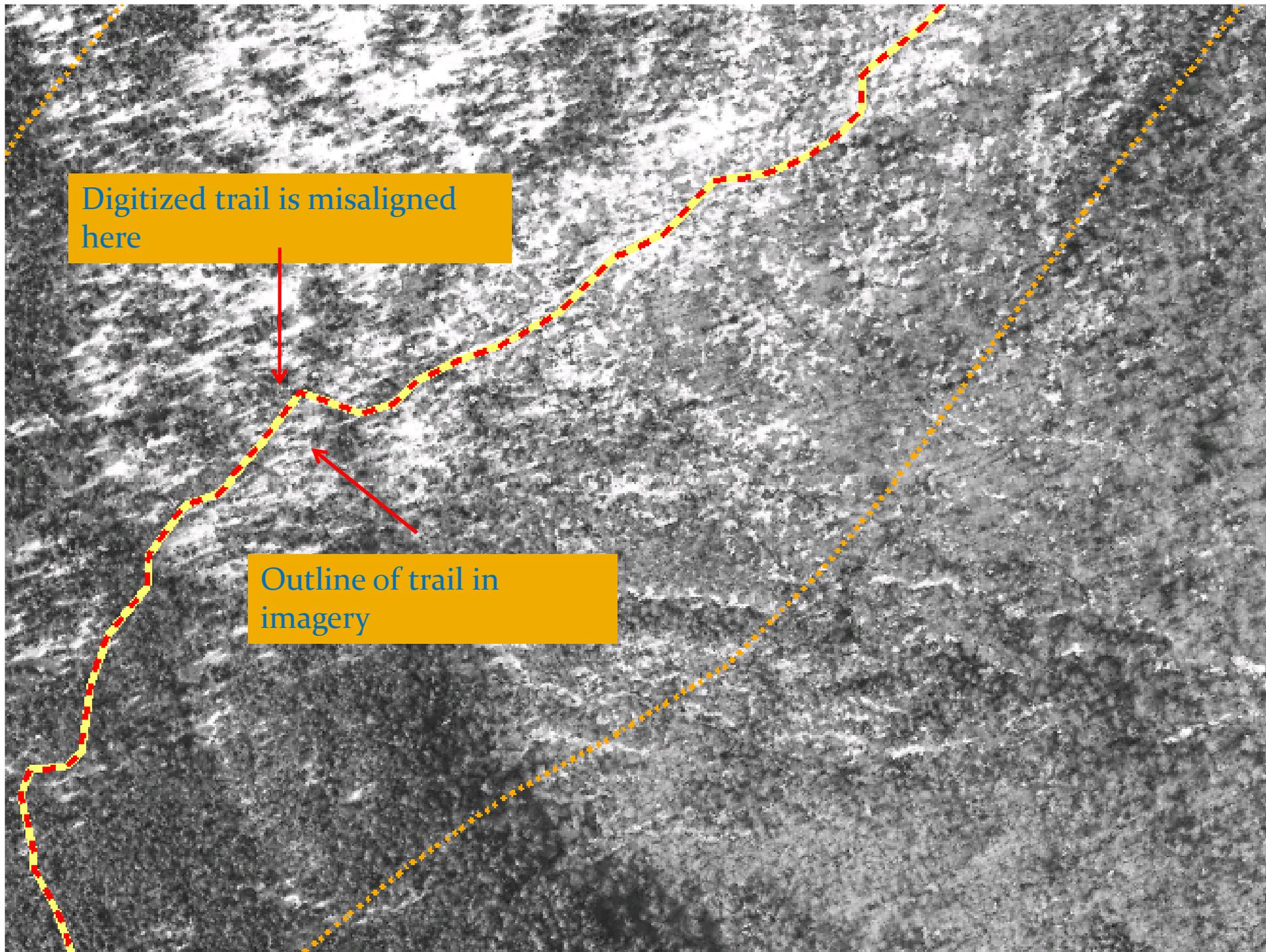
Eden_dryhydro Point







Outline of trail in
imagery



Digitized trail is misaligned here

Outline of trail in imagery





STOWE

Resources

- Regional Planning Commissions - for technical help
- VCGI – for orthophotos, Esite data, free consumer-grade GPS loans, some training
- Online – lots of forums! In Vermont we have VGIS-L email listserv