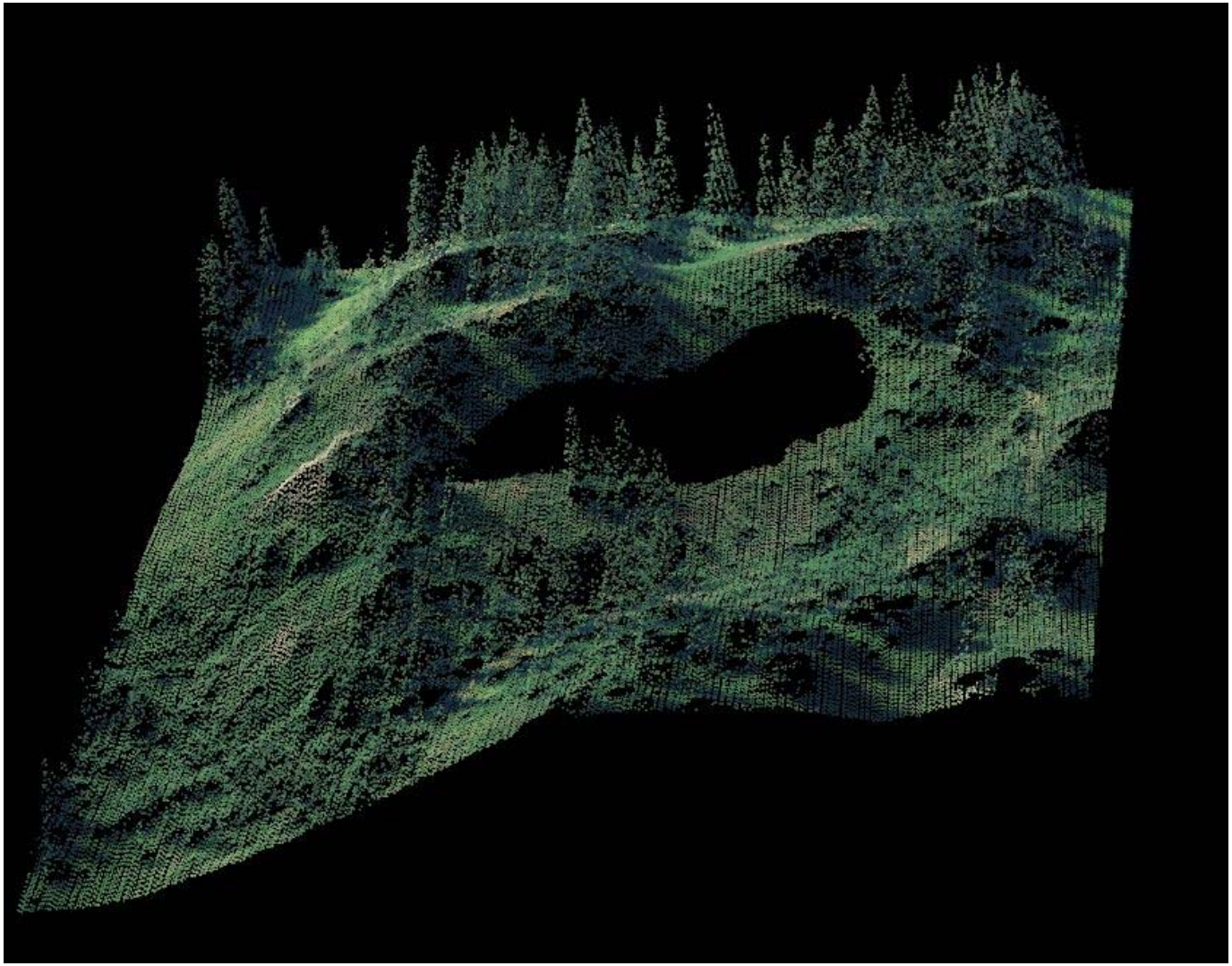
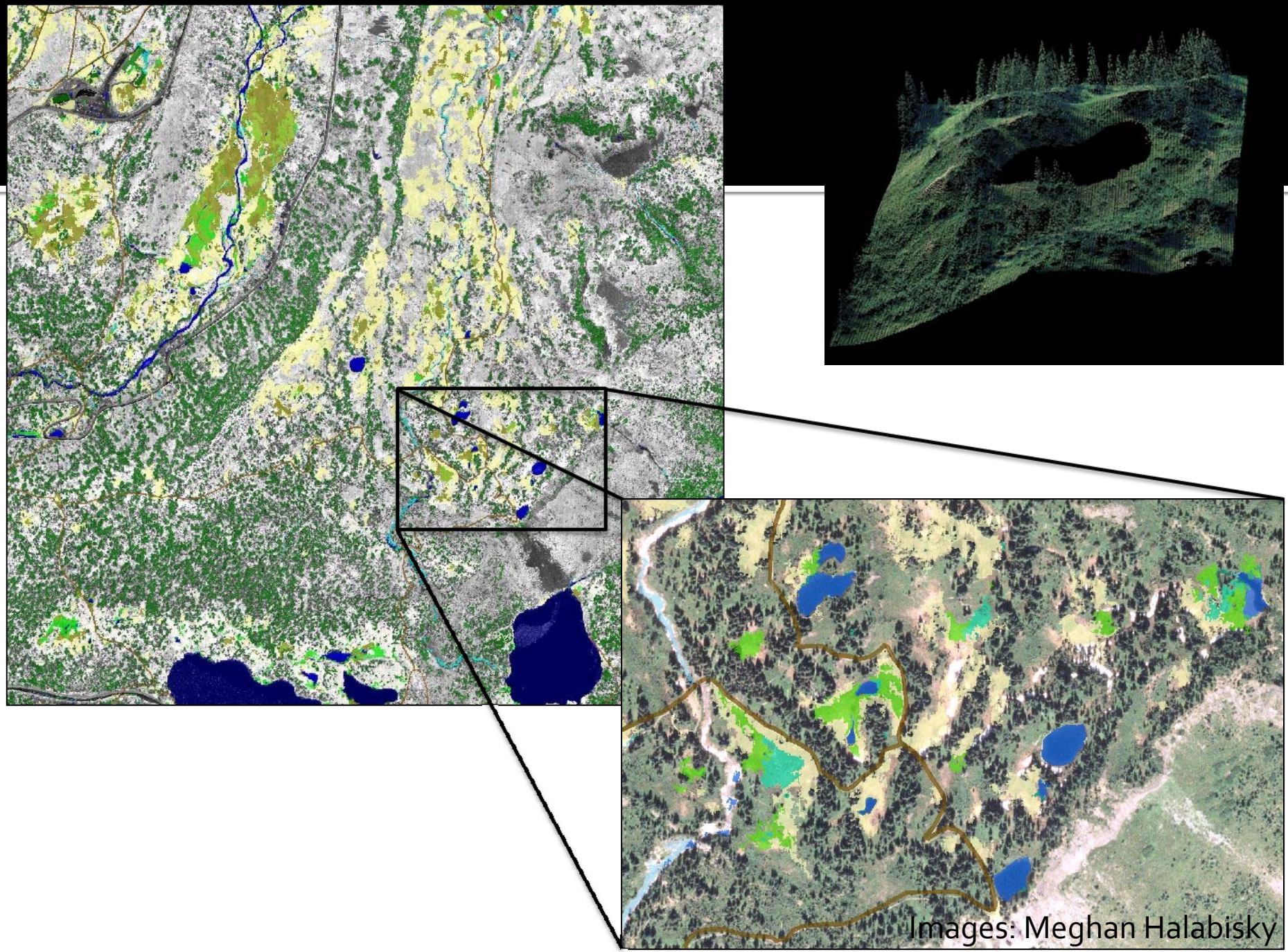
Using high resolution remote sensing tools to characterize wetlands

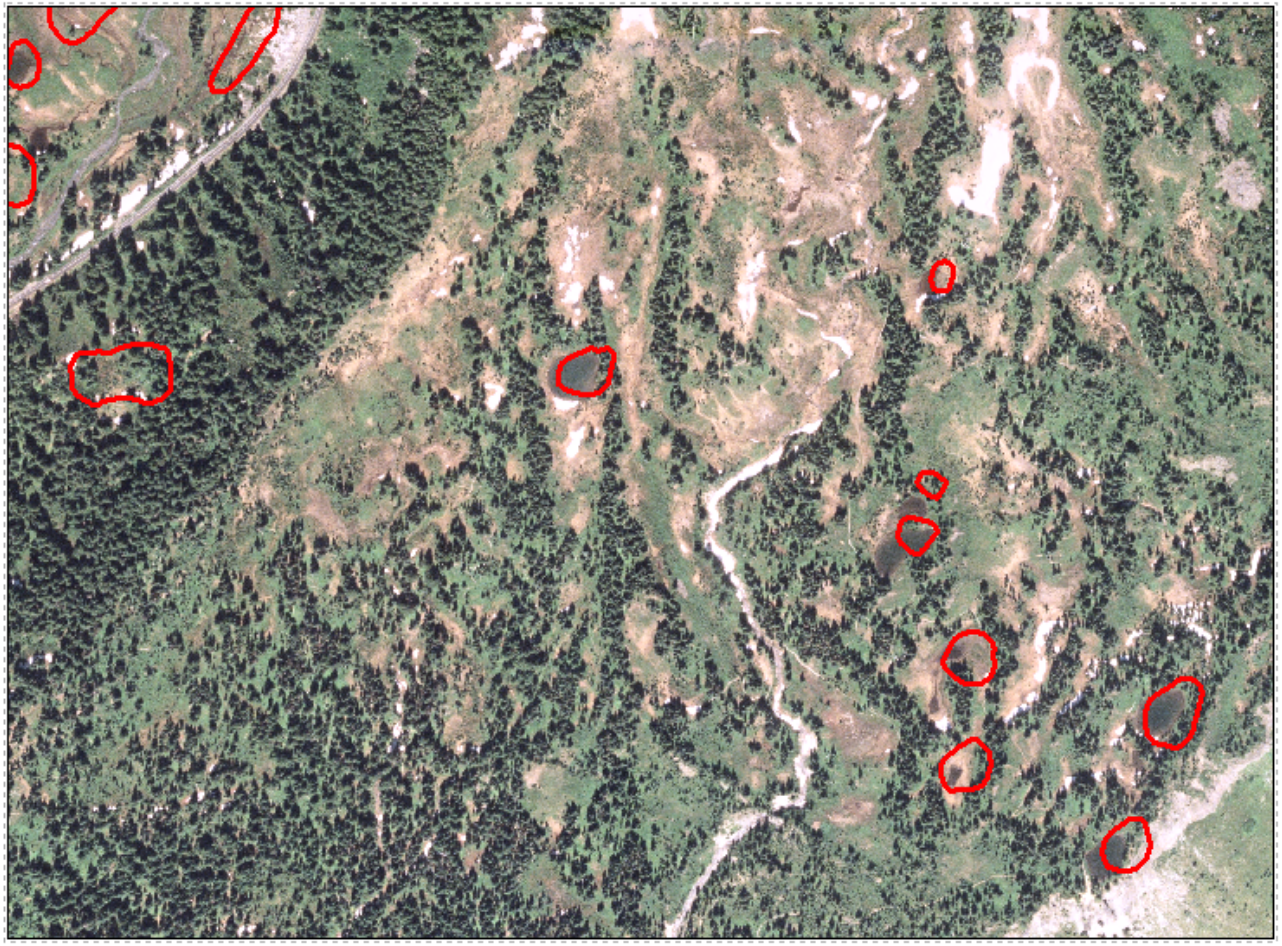




Images: Meghan Halabisky

Classify wetland types

Study Area: Mt. Rainier National Park



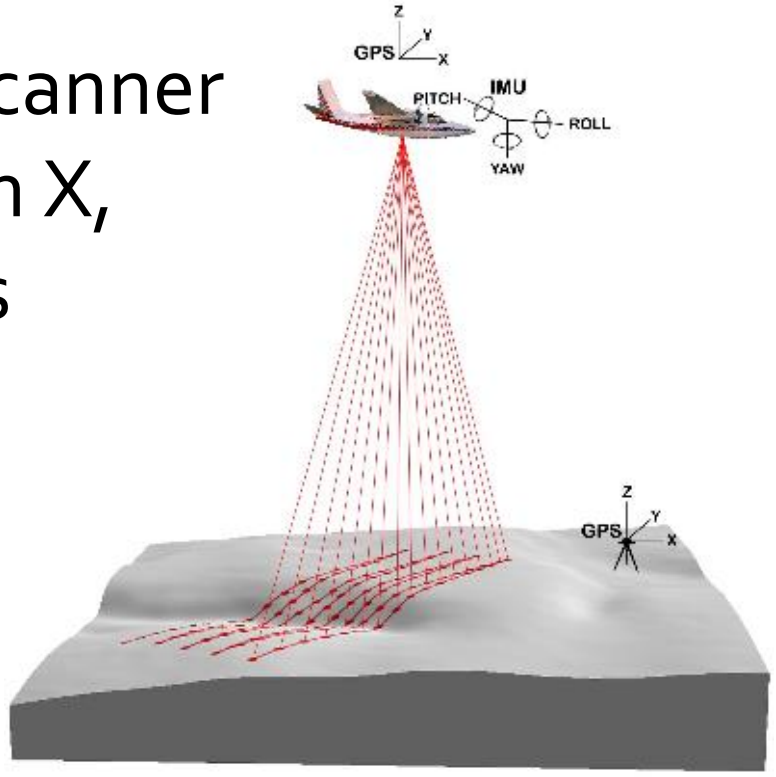
What are the R.S. tools?

Remote sensing is the science and art of identifying, observing, and measuring an object without coming into direct contact with it.

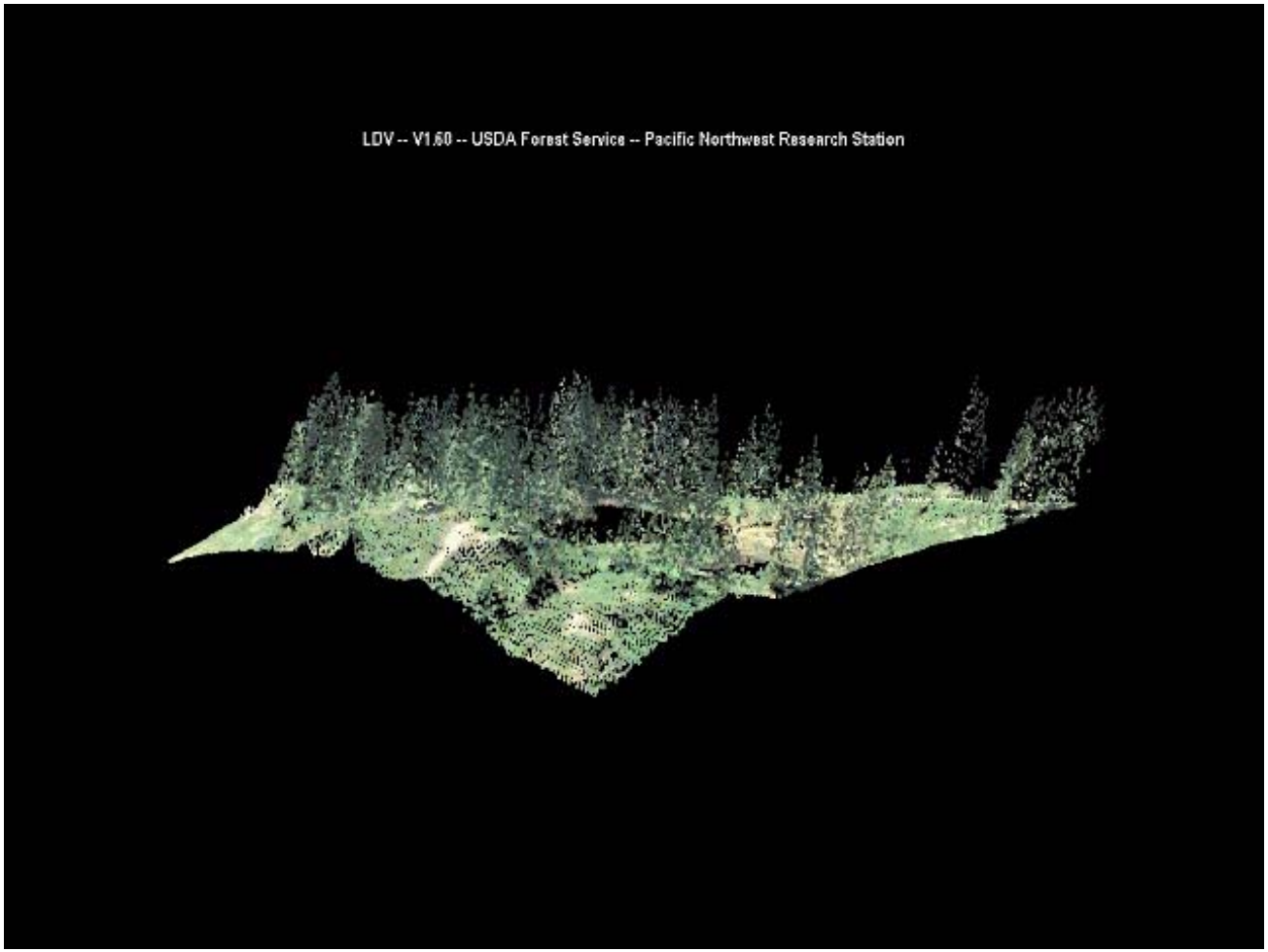
- LiDAR
- Object based image analysis

What is LiDAR?

- Light Detection and Ranging
- Similar to Radar
- Active airborne laser scanner
- Returns are points with X,
  Y and Z coordinates



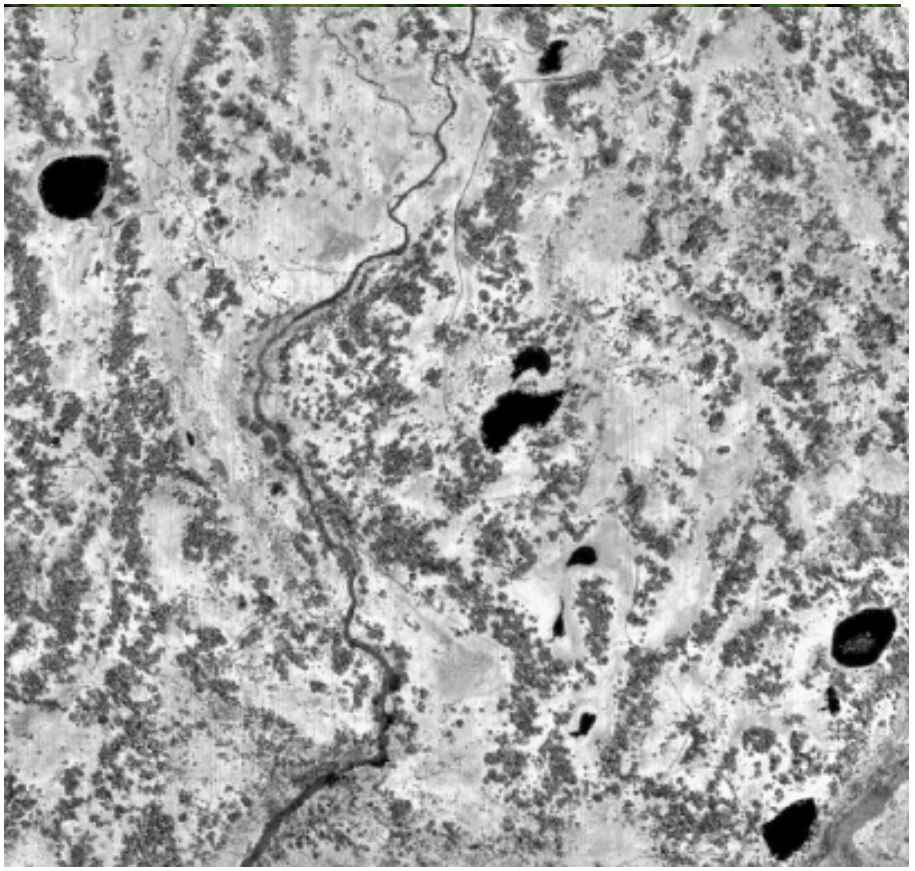
Example of LiDAR



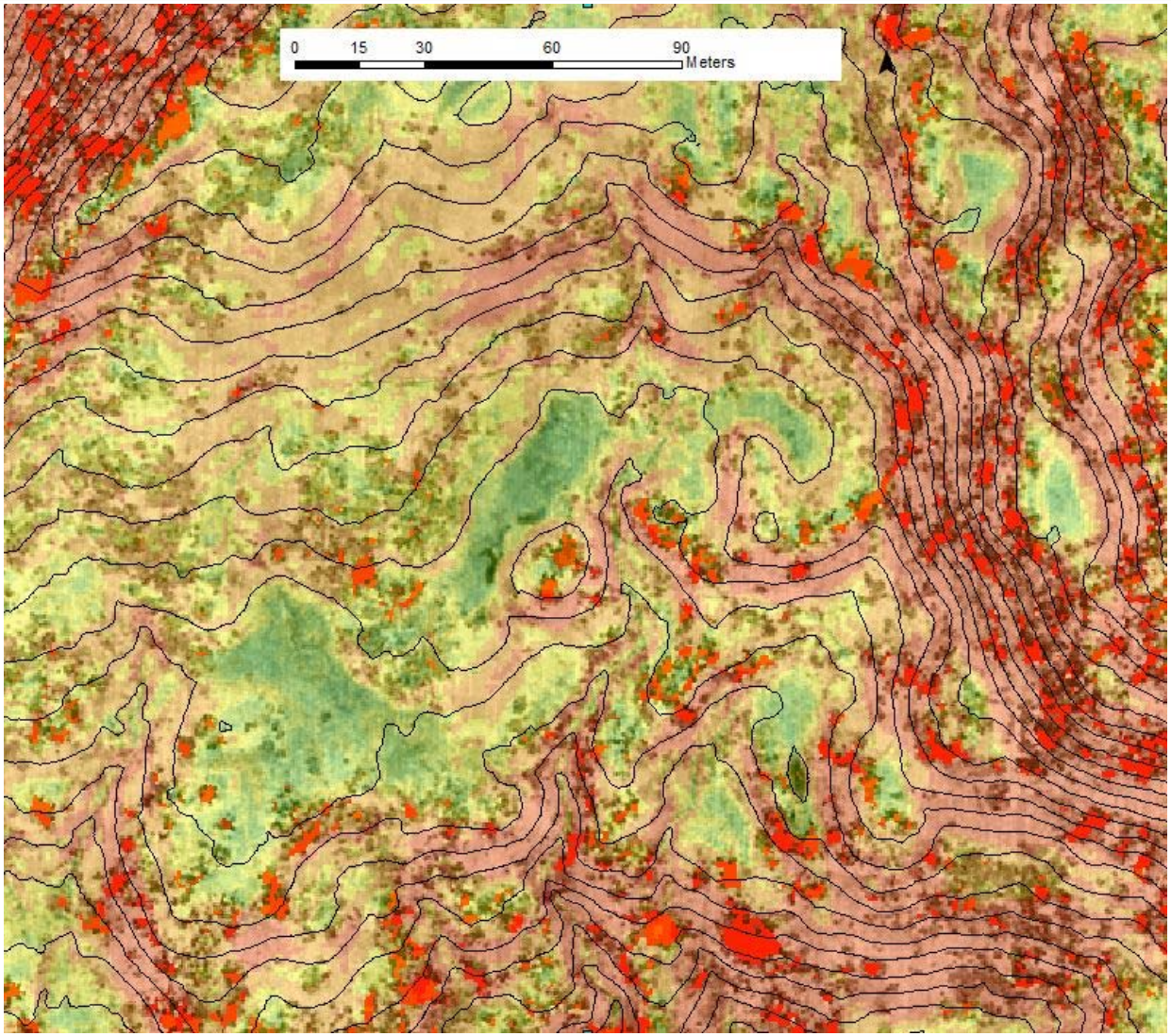
Using LiDAR to characterize wetlands

Lidar Products:

- Ground model
- Surface model
- Slope
- Intensity image



Using LiDAR to characterize wetlands



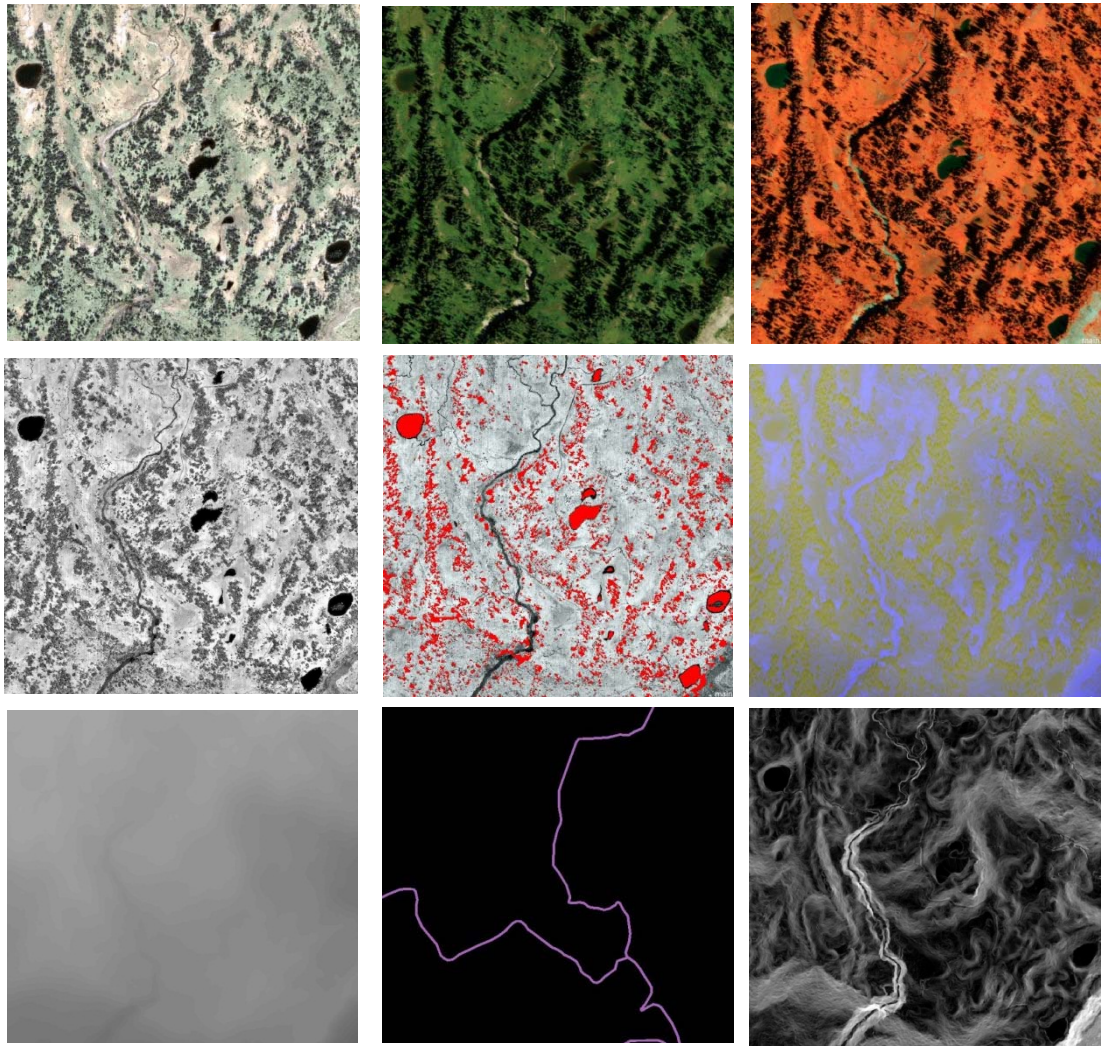
Object-based image analysis (OBIA)

- **Detect** patterns within the data input layers.
- **Delineate** these patterns at the appropriate scale.
- **Classify** the delineated objects.

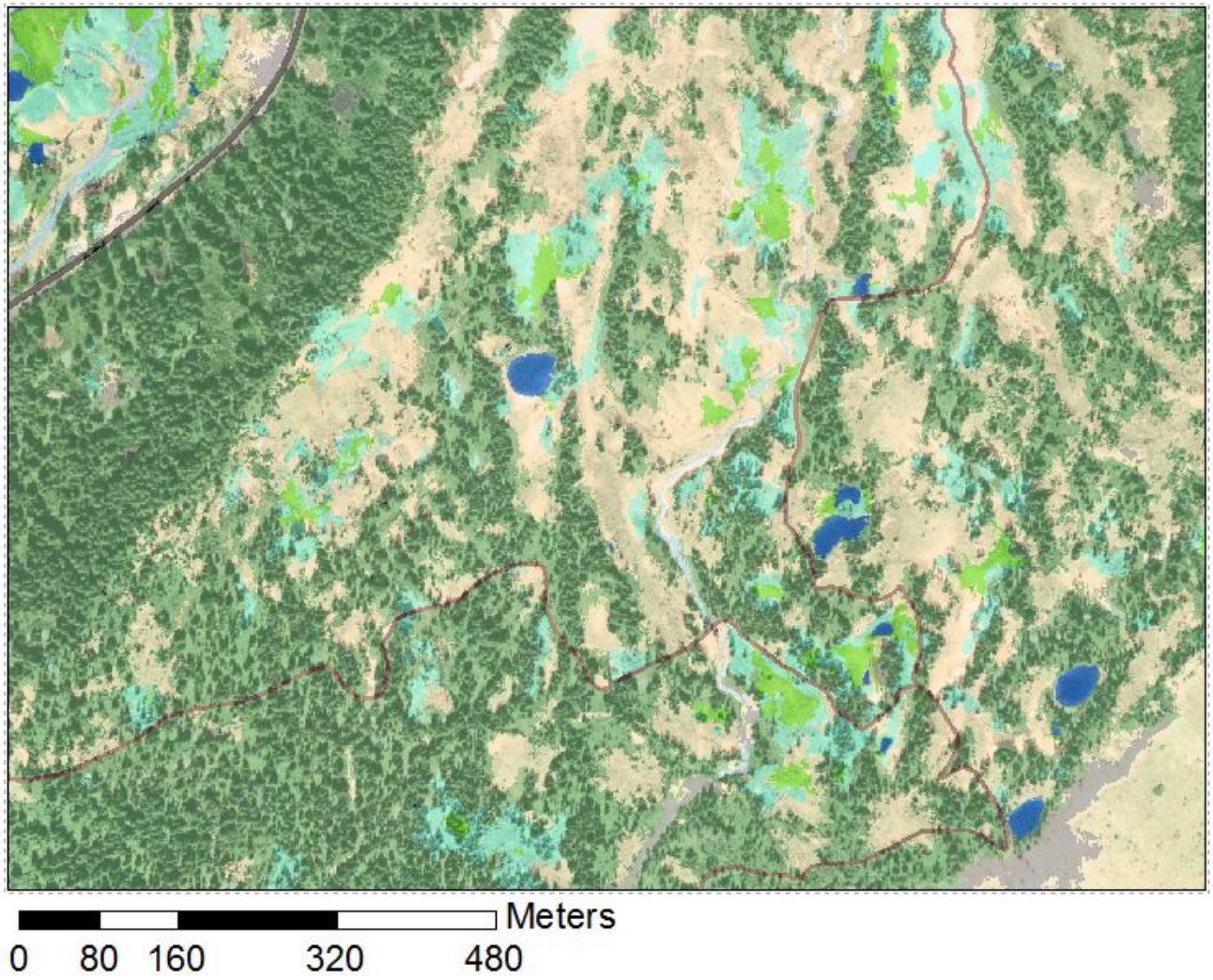
Object-based image analysis (OBIA)

Mt. Rainier Inputs

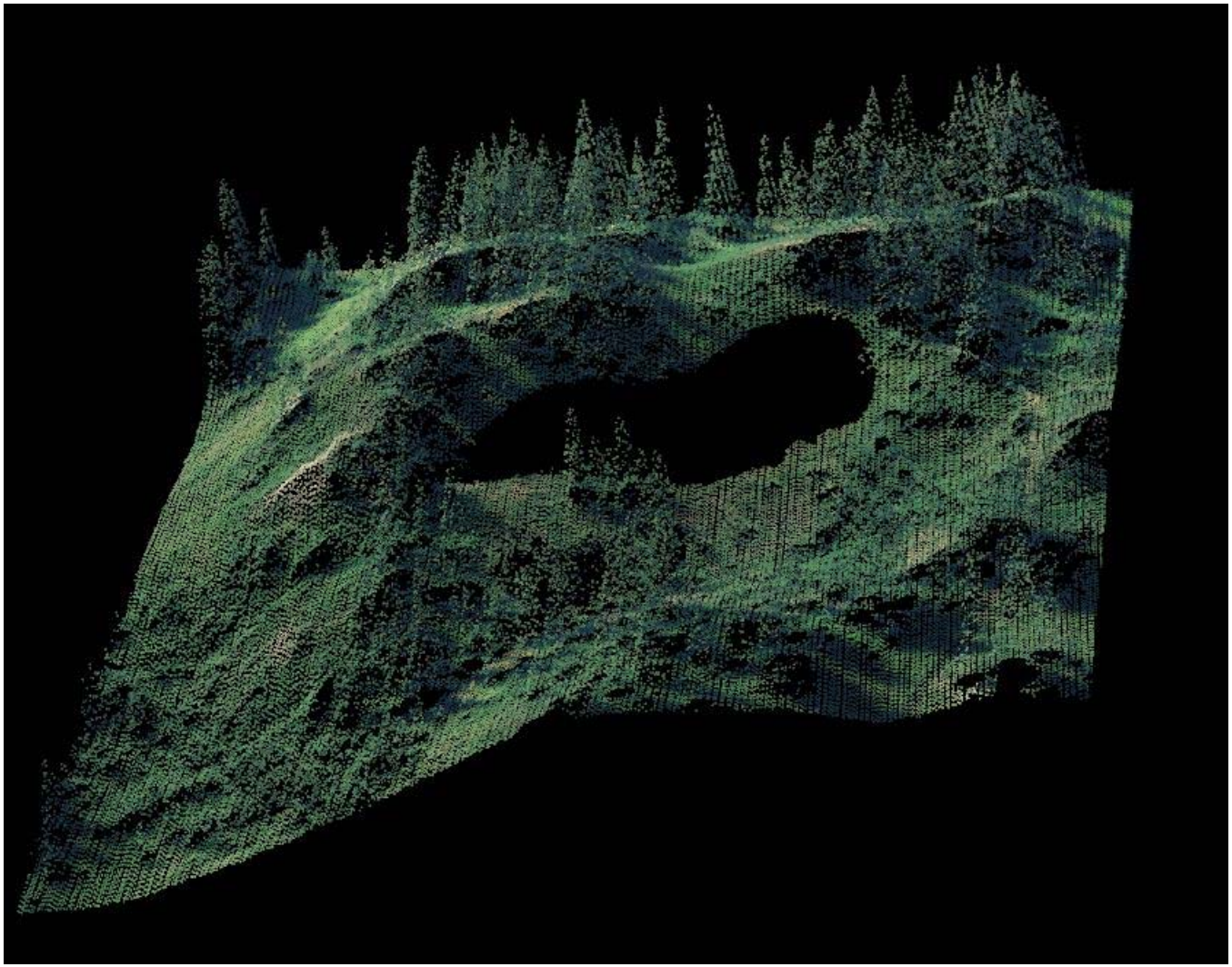
- 2006 aerial imagery
- 2009 aerial imagery
- Lidar intensity
- Lidar intensity below 2 meters
- Surface model
- Ground model
- Roads layer
- Trails layer
- Slope index



Preliminary results

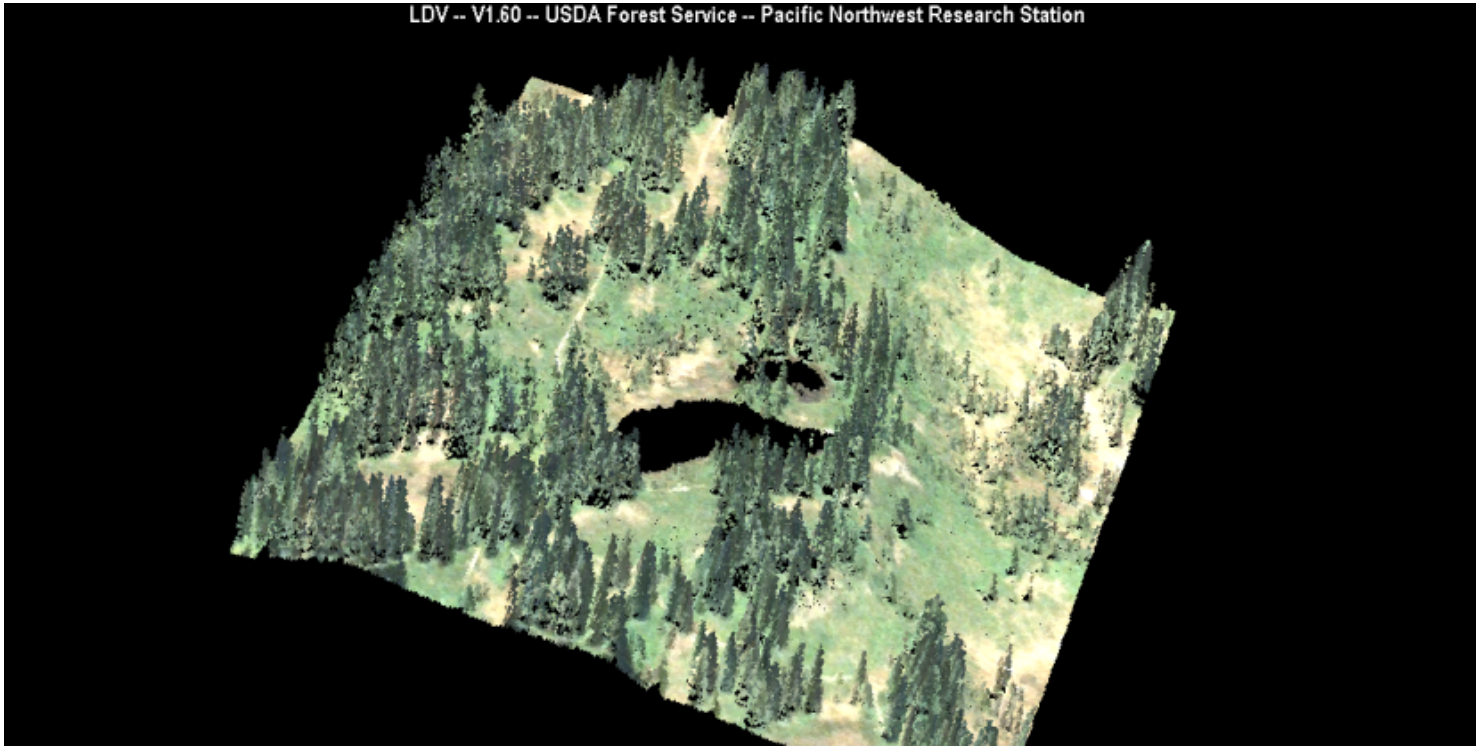


Next Steps



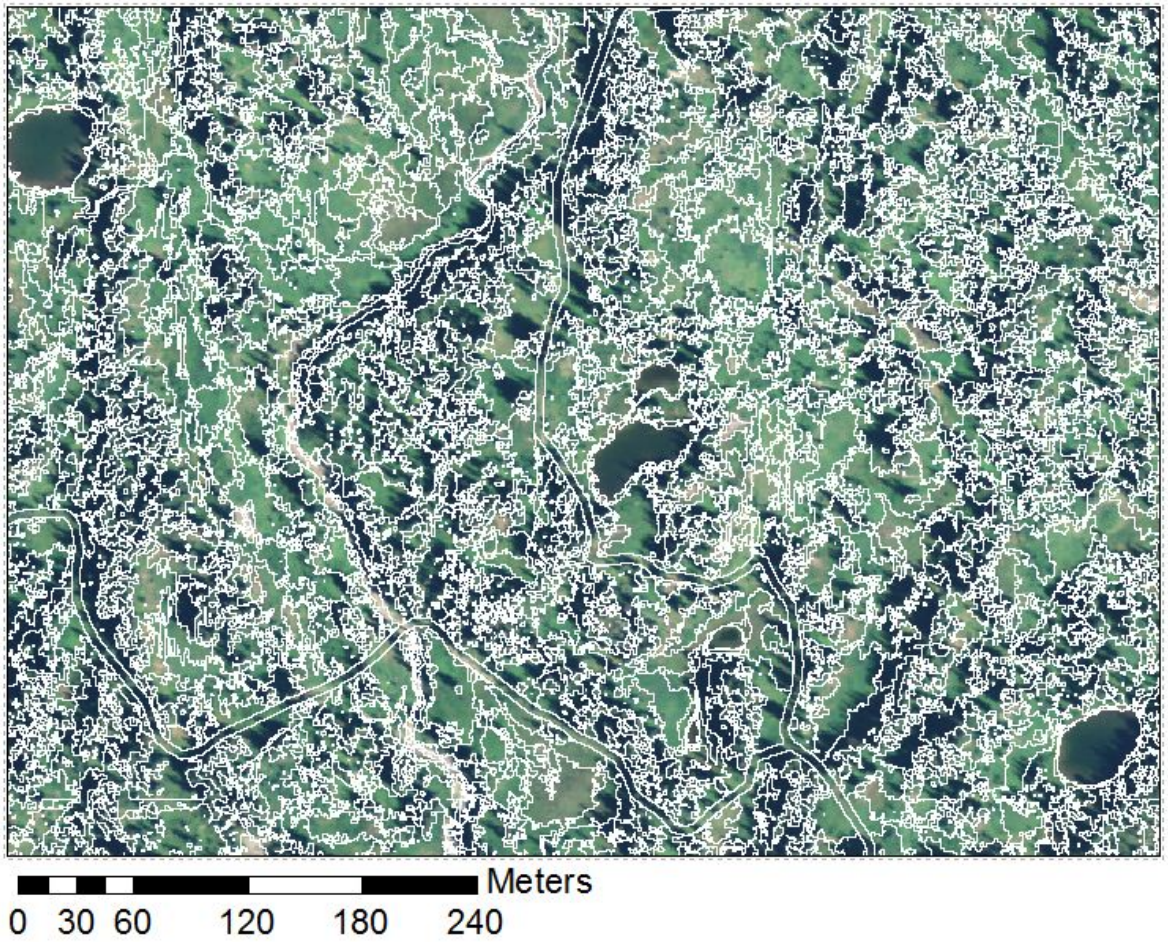
Depth transects of
ibutton™ temperature
dataloggers

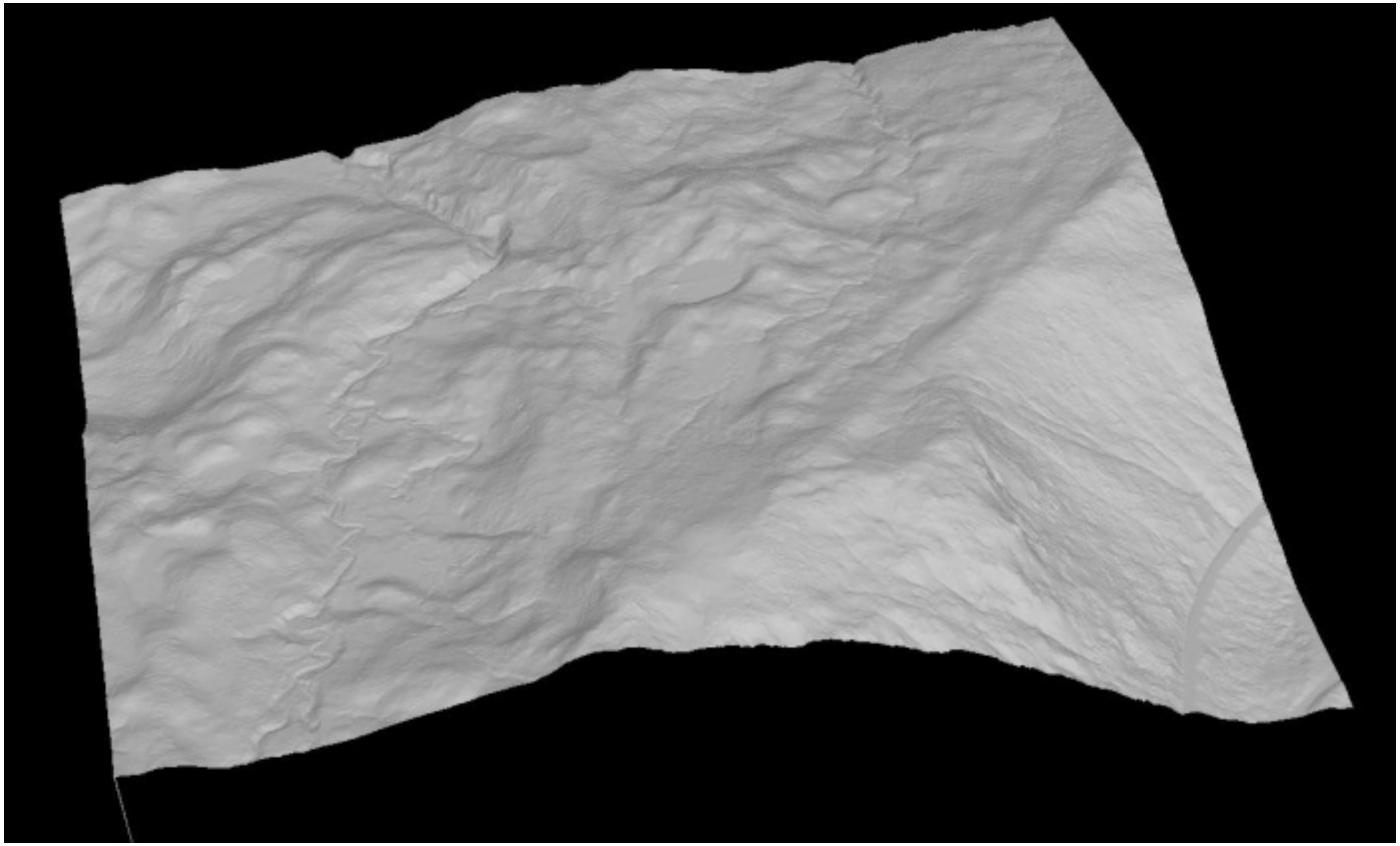
Thank you!



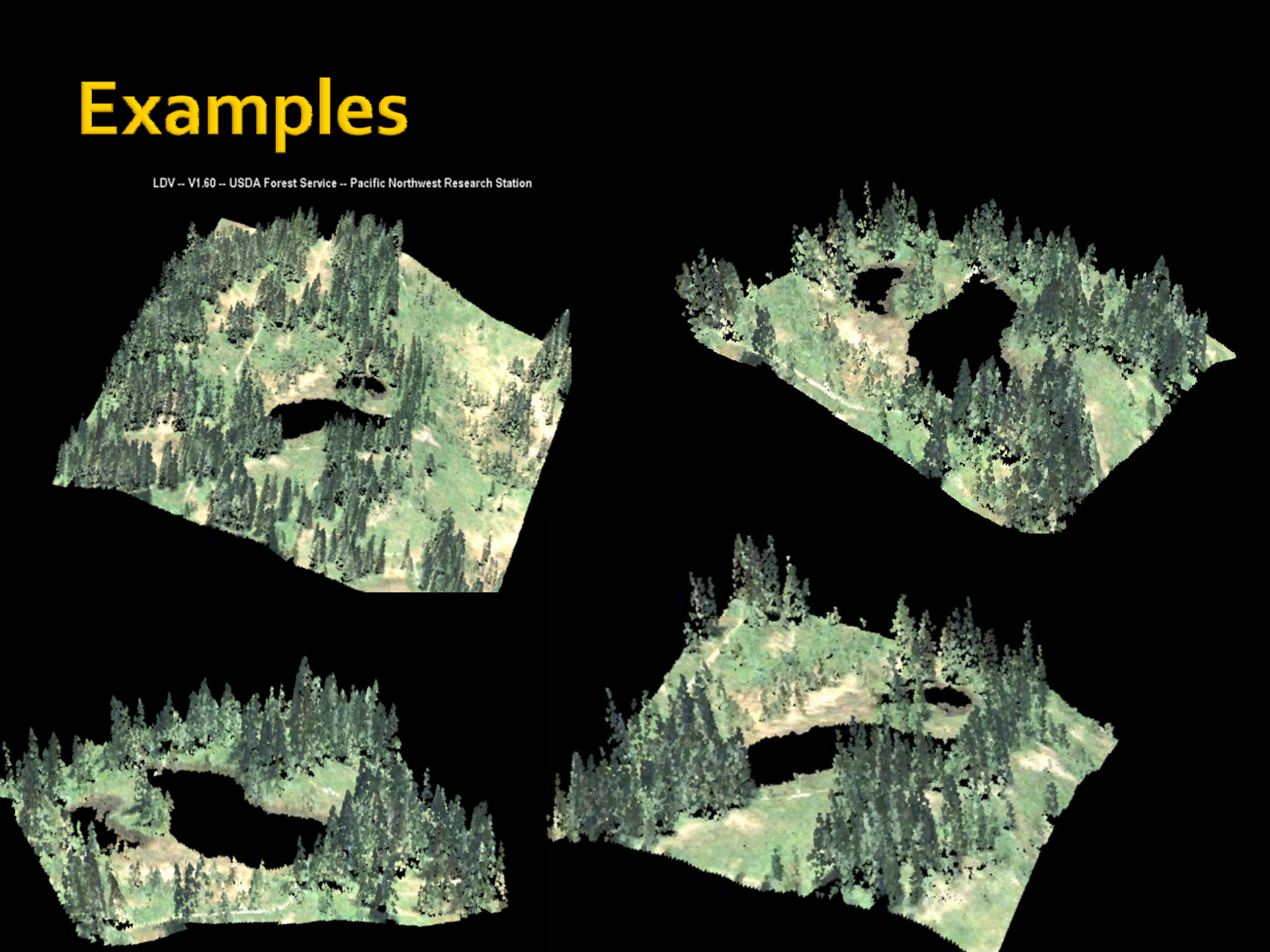
- USDA Forest Service MacIntire Stennis Grant awarded to Dr. Monika Moskal

Acknowledgements





Examples


LDV -- V1.60 -- USDA Forest Service -- Pacific Northwest Research Station