The Application of LiDAR to Watershed Management on the White Mountain National Forest

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Overview

• What is LiDAR and why is it so cool?
• LiDAR status in NH
• Current applications
• Planned, near-future applications
• Future applications
What is LiDAR?

• Light Detection and Ranging
• Optical remote sensing technique using lasers
• Produces mass point cloud datasets

Why is LiDAR so cool?

• Map top of tree canopy
• Map ground surface elevation
• Actual measurements of ground surface
• High resolution
• Repeated measurements

NYC point cloud. Credit: Jarlath O'Neil-Dunne; UVM-SAL
LiDAR Status in NH

- [http://lidar.unh.edu/map/](http://lidar.unh.edu/map/)
Current Applications

• Updating the Watershed Boundary Dataset (WBD)
Current Applications

• Delineating HUC-14 and HUC-16 watersheds
Current Applications

- Updating the National Hydrography Dataset (NHD) flowlines
Current Applications

- Forest-wide soil mapping and Terrestrial Ecological Unit (TEU) mapping
Planned Applications

• Mapping potential vernal pools

Photos: UNH Cooperative Extension
Planned Applications

- Flood hazard analysis at campgrounds near rivers
Planned Applications

• Floodplain delineation
Planned Applications

• Rating curve generation at new streamflow gaging stations

Credit: Christopher Goodell, WEST Consultants
Planned Applications

• Identifying straightened stream reaches

Photo: Nash Stream, Coos County, NH.
Credit: Trout Unlimited,
http://www.tu.org/tu-projects/nash-stream
Future Applications

• Stream and riparian characterization
• Advanced vegetation analysis
• Pair with multi- and/or hyper-spectral imagery to map to species
• Quantify landscape changes over time
• Disturbance mapping
• ???

Questions?

Photo credit: John Anderson, 2013 WMNF Artist-in-Residence Program