

## Safety

A comprehensive project aviation safety plan and emergency action plan for this project were developed in a cooperative effort between the State of Alaska, Department of Natural Resources, Division of Forestry (DOF) and the Pacific Northwest Research Station, Resource Monitoring and Assessment program (PNWRS RMA) of the U.S. Forest Service (USFS). The existing aviation and emergency plans undergo annual review and revision and will be carried forward to 2017 field operations and beyond.

## 2016 Achievements and Project Ramp-up

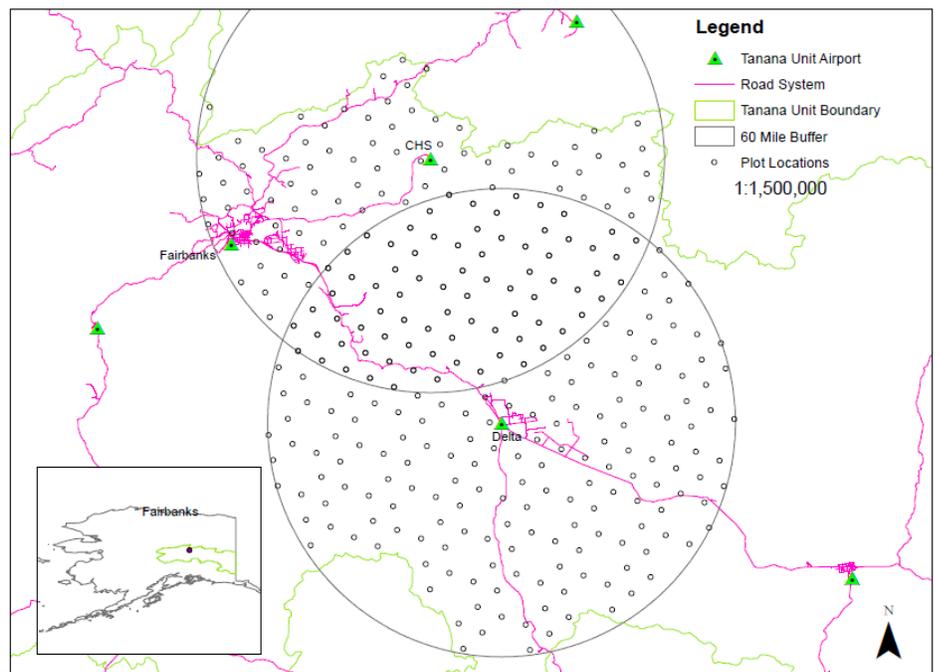
The Interior Alaska forest inventory is a cooperative effort between the USFS and AK DOF with assistance from additional key partners in Alaska. During the 2016 field season the project was staffed with one full-time and one seasonal DOF Operations Coordinator, PNW Forest Inventory and Analysis program (FIA) staff and a team of seasonal crew leaders and crew members in collaboration with DOF and the University of Alaska, Fairbanks. The USFS Coastal Alaska FIA crew aided the Interior crew for two field stints to achieve plot completion goals in August and PNW RMA hired a full time FIA Operations Coordinator during that timeframe.

The 2016 Interior Alaska inventory field season began with field training in Fairbanks in mid-June. The initial field season production goal was 100-125 phase-2 FIA plots. Field crews exceeded that projection with a final tally of 188 plots completed between June 20 and September 2, 2016. The ramp-up plan to full capacity calls for measurement of 250 or more plots in 2017, and the balance of the 700 total forested plots in the Tanana unit in 2018. The project is currently in preparation for a second season of operations in 2017 and continues to expand in the Tanana unit toward an eventual production goal of 400 or more plots per season by 2019.

In 2017 DOF and FIA coordinators will join forces to hire more field crews and develop flexible contract requirements for multiple aircraft and remote camp logistics for future field seasons. Alaska DOF should reach full field production capacity starting with the Copper Susitna unit in 2019. The State will then assume supervision of field operations with minimal contributions from USFS FIA besides funding, inventory specifications, quality assurance and data management.

## 2017 Goals

The 2017 mission to complete 250 phase-2 FIA plots revolves around three proposed operations hubs in Fairbanks, Chena Hot Springs, and Delta Junction.



Approximate locations for 321 FIA plots within a 65 mile radius from potential 2017 operations hubs in the Tanana inventory unit; Fairbanks, Chena Hot Springs and Delta Junction. Map: M. Stevens

Chena Hot Springs, and Delta Junction. Housing availability and provisioning requirements are currently under evaluation for these hubs. Plot photo interpretation to determine forested status is complete for all plots in the Tanana unit. Permitting and ownership determination efforts for 2017 plot access are underway.

Crew and flight configuration will consist of a four person field crew including an experienced FIA crew leader and three crew members from DOF. A certified FIA or DOF helicopter flight manager will always accompany the pilot for a total of six people on some flights, depending on crew structure. Until DOF crew members have acquired the skills and experience required to install a single high quality FIA plot in one visit without additional support, a FIA QA/trainer crew leader will assist the three person DOF crew. Typical crew and flight configuration to start will include:

- 1) Pilot
- 2) Certified helicopter flight manager (all flights)
- 3) USFS or DOF QA/crew lead trainer
- 4) DOF crew member (forester term)
- 5) DOF crew member (seasonal)
- 6) DOF crew member (seasonal)

Initially the optimal production goal is three plots daily when flying conditions permit, and up to six when three additional USFS Coastal Alaska FIA crews and another helicopter arrive to assist the Interior inventory effort. Each 10 day hitch will accommodate eight or nine flying days weather permitting, allowing for one or two travel days.

## Agreements

In 2016 PNW RMA and USFS Region 6 staff met with State of Alaska DOF aviation and agreements specialists to develop a contract for an exclusive use helicopter including fuel and maintenance, with the option to renew up to four years if desired. Opportunities to acquire additional aviation assets are currently under consideration.

In 2016 project staff also worked with PNW Grants and Agreements to develop a flexible, comprehensive joint venture agreement (JV) with DOF to facilitate implementation of the ongoing interior inventory project. This agreement will continue through the 2018 field season to allow continuity for the duration of the Tanana unit measurement phase.

Discussions are currently underway with key Alaska land managers for permitting and access to forested plot locations across all interior lands.



Helicopters are essential for access to remote plots in Interior Alaska.

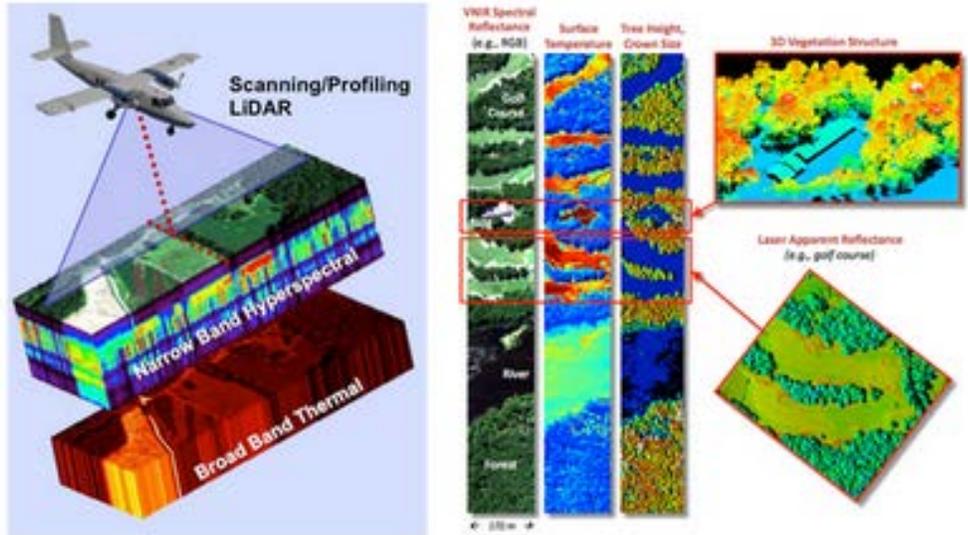
## Integration of Field Data and Remote Sensing

PNW RMA scientists continue to cooperate with NASA to fund and develop the next generation of Goddard's LiDAR, Hyperspectral and Thermal Imager (G-LiHT). The G-LiHT sensor suite enables integration with field data acquisition for model assisted landscape classification and vegetation attribute estimation like forest biomass and carbon sequestration. The Copper Susitna inventory unit will likely be targeted for the next G-LiHT acquisition in 2017-18.

RMA has contributed funds for the development of an improved second generation version of the G-LiHT platform including the integration of an upgraded hi-resolution multi-band imaging camera.

## Data Management

Current FIA data management practices used for the Coastal Alaska inventory project are also being applied to the interior project. In 2016 and beyond the data will undergo standard QA/QC evaluation to ensure it meets established minimum quality standards. Data will be loaded to the FIA National Information Management system (NIMs) and ultimately pushed to the Forest inventory and Analysis Database on-line (FIADB) for public distribution after completion of the Tanana unit in early 2019.



Goddard's LiDAR, Hyperspectral and Thermal Imager (G-LiHT).

## 2017 Interior Alaska Inventory Project Milestones

January	DOF initiates hiring of field staff
March	2017 interior AK field manual supplement edits complete
April	Field data recorder configuration development begins
May	Field crew training in Fairbanks
May 29	Production/aviation mission begins
August 31	Field mission concludes

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G-LiHT DSLR image of forests and open water near the Tetlin National Wildlife Refuge east of Tok, Alaska. Credit: NASA