## Remote Sensing and Analysis Center of Excellence (RACE)

# Healthy Forests Served by Digital Aerial Sketchmapping

### The Challenge

Pests, disease, natural disasters, and human-caused damage threaten healthy forests in the 21st century. Those charged with forest health protection face a scarcity of resources to evaluate conditions across the landscape and translate findings into corrective actions.

Tried and true methods for forest health protection involve remote sensing through aerial surveys and sketchmapping, which bring with them high costs in data acquisition and the digitizing of that data for analysis. Outdated sensing methods keep processes cumbersome and costs high.

### The Solution

The USDA Forest Service Forest Health Technology Enterprise Team engineered a digital aerial sketchmapping system for aerial surveys that breathes efficiency and accuracy into the remote sensing and data analysis process. The system replaces pencils and scroll maps previously used to draw polygons around forest damage, and eliminates the long process of scanning maps into shapefiles for Geographic Information System (GIS) analysis.

Digital aerial sketchmapping integrates:

- the Global Positioning System (GPS),
- a Laptop running GeoLink software, and
- touchscreen technology for sketchmapping.

For the 20 million acres of forest surveyed in New York and New England, Bill Frament, remote sensing specialist for the Durham Field Office (DFO), estimates, "I've implemented digital sketchmapping on 70 to 75 percent of the Federal and tribal lands I fly. It's more accurate and faster (than before)." Bill has also guided State partners as they implement the system for their aerial survey work.

### Resulting Benefits

Vermont forest health specialist Barbara Burns appreciates the added freedom digital sketchmapping gives her in the air. "I like the savings in mental energy. Because the screen always shows where the plane is, we don't have to constantly track our location on maps. It's less stressful, plus we can spend more time looking out in the distance, and pick up things we might not have noticed before."

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>
> *—Kyle Lombard*

Digital aerial sketchmapping at work.

New Hampshire forest health specialist Kyle Lombard holds similar esteem for digital sketchmapping. He estimates, "The system gains us probably 40 percent efficiency in ferry time and search time since we no longer have to circle to locate a ground feature to reference a starting position by. At $80 to $90 an hour for flight time, that means we can get a lot more survey done each year for the same budget."

### Sharing Success

Vermont and New Hampshire agree that there is a learning curve with the new technology, one that they wouldn't have started on without the initiative and expertise of Frament.

"Bill has been great," feels Burns. "He's helped us with everything: getting the equipment set up, providing training, testing it in the plane, and working up the data. And he's still just a phone call away."

Lombard agrees. "New Hampshire, like many other states in the Northeast, would not be doing it without Bill . . .We just don't have the budget to research and implement (on this scale)."

With digital aerial sketchmapping systems up and running in Vermont, New York, and New Hampshire, DFO moves next to extend these advantages to the remaining Northeastern States it serves. This will bring consistency and accuracy in forest survey data and solidify the Northeastern Area's foundation for exchange and advancement of technologies that serve healthy forests.

USDA Forest Service
**Northeastern Area**
*State and Private Forestry*

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