Lake States Aerial Survey Program

Helping Make Aerial Survey Data Even Better

The Challenge

For over 50 years, aerial surveys have been a valuable way to monitor the damage caused by forest insects and diseases, or assess the damage left behind after abiotic events such as tornadoes. Aerial surveyors sketch the damage they see on a map while airborne in a process known as aerial sketchmapping.

Until the mid-1990s, most aerial surveys in the Lake States were made following known insect, disease, or weather events to document the extent and severity of damage they caused for management purposes. Because the people that made these surveys had different skill levels and experience, the quality of the data they collected varied greatly. This lack of consistency in data collection made it difficult to compare results from year to year or even within areas flown by different surveyors in the same year.

The Solution

Since the mid-1990s, there has been an ongoing effort both in the Lake States and nationally to standardize how State and Federal entities collect and report aerial survey data. The goal: promote consistent and comprehensive data collection and reporting by the Forest Service's aerial surveyors and its many State cooperators. The National Forest Health Monitoring Program and the National Aerial Survey Working Group are coordinating this effort. They are standardizing reporting methods as well as training and mentoring programs for surveyors from both Federal and State agencies.

Personnel from the St. Paul Field Office of Northeastern Area State and Private Forestry have been contributing to this effort. Their contributions include:

- Providing funding to State agencies through Off Plot Monitoring grants to help defray the expense of conducting aerial surveys on State and private lands.
- Providing the latest digital aerial sketchmapping technology and training to State cooperators.
- Outlining expectations and coordinating the timing and areas of responsibility for aerial surveys with State cooperators.
- Holding post-season meetings to compare data and coordinate reporting.

Sketchmapping survey results depend on the skill and experience of the mapper as well as many other factors.

Mortality caused by the larch beetle in northern Minnesota was detected during a July 2007 aerial survey.

Resulting Benefits

Aerial sketchmapping is, and always will be, a combination of art and science. Sketchmapping survey results depend on the skill and experience of the mapper, as well as many other factors. Because of the many efforts to improve and standardize the quality of the aerial survey data collected and reported, aerial survey data have many more applications than in the past.

Sharing Success

Recent technological innovations in displaying and sharing the results of sketchmapping data help to improve communication between and among responding forest health managers. These include:

- Providing a historical record of the progression of forest damage caused by insects and diseases such as oak wilt.
- Recording the advance of invasive insect and disease infestations such as gypsy moth and beech bark disease.
- Illustrating trends in native insect infestations, such as the forest tent caterpillar and other hardwood defoliators, spruce budworm, and jack pine budworm.
- Detecting and monitoring biotic and abiotic events.
- Tracking and reporting regional and national trends that can be reliably compared from year to year and State to State.

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