Forest Jobs Get Sharper Tools From the Air

A Maine aircraft sensor system is changing how crews find dumping, map timber and measure changing landscapes.



A small aircraft scans a forest from above while discarded objects sit in a clearing below.

A University of Maine airplane is helping forestry and conservation crews see problems and resources on the ground with much more precision. According to reporting by Phys.org, aerial **survey** pilot and remote sensing specialist Dave Sandilands recently flew over large forest areas in northern and eastern Maine using a new **sensor** system that combines **lidar** with a high-resolution **mapping** camera. Lidar, short for light detection and ranging, sends out laser pulses and measures how long they take to bounce back, creating detailed measurements of land, trees and objects below.

The immediate job on one flight sounded simple: look for illegally dumped trash on land managed by conservation groups. The work covered the 760,000-acre Pingree Easement in northern Maine and 335,000 acres in Washington County through the Downeast Lakes Forestry Partnership. Those are not small parks where someone can quickly walk every road and gravel pit. They are working forest landscapes, where timber production, wildlife habitat, recreation and conservation rules all have to be managed over huge areas. From the air, the new system helped spot discarded appliances that older **imagery** might have made look like pale rocks.

The change is not just better pictures. It is better workflow. Older aerial photos still required people to manually connect each image to exact ground locations, a process called georeferencing. A georeferenced image is tied to coordinates, so a crew can use it to find the same spot on the ground. Sandilands said the new equipment does that automatically, which means staff can move faster from finding a violation to sending a crew to remove the trash. In field operations, saving office time matters because every hour spent cleaning up data is an hour not spent planning, repairing, hauling or verifying conditions outside.

The same technology also matters for timber harvesting. The University of Maine's Barbara Wheatland Geospatial Analysis Laboratory has made forest **inventory** maps since 2013. A forest inventory is a detailed accounting of what is growing in a stand of trees, including how many trees are present, how dense the stand is and how much usable wood may be there. Foresters use that information to decide where and when to **harvest**, or whether to thin younger stands before they reach commercial size. Thinning means removing selected trees so the remaining trees have more light, water and space to grow.

With the new airborne sensors, the lab can produce more complete maps of tree counts per area, forest density and volume, aboveground **biomass** and stored **carbon**. Biomass means the total living

material in trees and other plants, and stored carbon is the carbon held in that plant material instead of being in the atmosphere. Those measurements matter to different parts of the industry. A timber company may care about volume because it affects harvest planning and trucking. A conservation group may care about carbon and habitat. A land manager may need both sets of information to make a plan that can be defended with data.

The system also shows how forestry careers are changing. A person in this work may still need to understand tree species, soils, roads, equipment access and harvest timing. But now the job can also involve **aircraft** operations, sensor calibration, satellite images, publicly available lidar, partner data and computer-based mapping. Remote sensing means collecting information about a place without physically touching it, often from aircraft or satellites. The lab's team combines its own aircraft data with satellite images and other public and partner data, which means today's forestry work can sit at the intersection of field skills and digital skills.

For CTE pathways, the story is a reminder that technical hiring often follows the tool chain. Employers and agencies need people who can safely collect data, process it, understand what it means and turn it into decisions that crews can use. In this article, the people doing the work include an aerial survey pilot, remote sensing specialists, foresters, conservation staff, university researchers and students training on real data. The source does not list a single required credential for these jobs, but it does show the kinds of abilities that matter: operating specialized equipment, reading geospatial data, understanding forest operations and communicating useful information to people responsible for land management.

The sensor system is also being used beyond timber and dumping enforcement. The university originally acquired it for research on snowpack and landscape stability across New England, and it has been used to survey selected field sites repeatedly to observe land instability and change along the coast of Maine. That matters because satellites cannot always be sent exactly where and when a local team needs them. An aircraft-based system gives researchers and land managers another tool for repeat surveys over large areas. The larger lesson for the work itself is practical: new technology does not replace forestry judgment, but it can change what good judgment is based on.

Written from reporting by Phys.org.

THINK IT THROUGH

1. **If a forestry company had limited money, should it invest first in better aerial mapping tools or in more ground crews? Defend your choice.**

   > **A strong answer:** A strong answer should weigh accuracy, cost, speed, safety, field verification and the fact that remote data still has to lead to action on the ground.

2. **How might automatic georeferencing change the division of labor between office staff, pilots, foresters and cleanup or harvest crews?**

   > **A strong answer:** A strong answer should analyze workflow, not just technology, including who saves time, who needs new skills and where errors might still occur.

3. **What information would you still want before trusting airborne sensor data to make a timber harvest decision?**

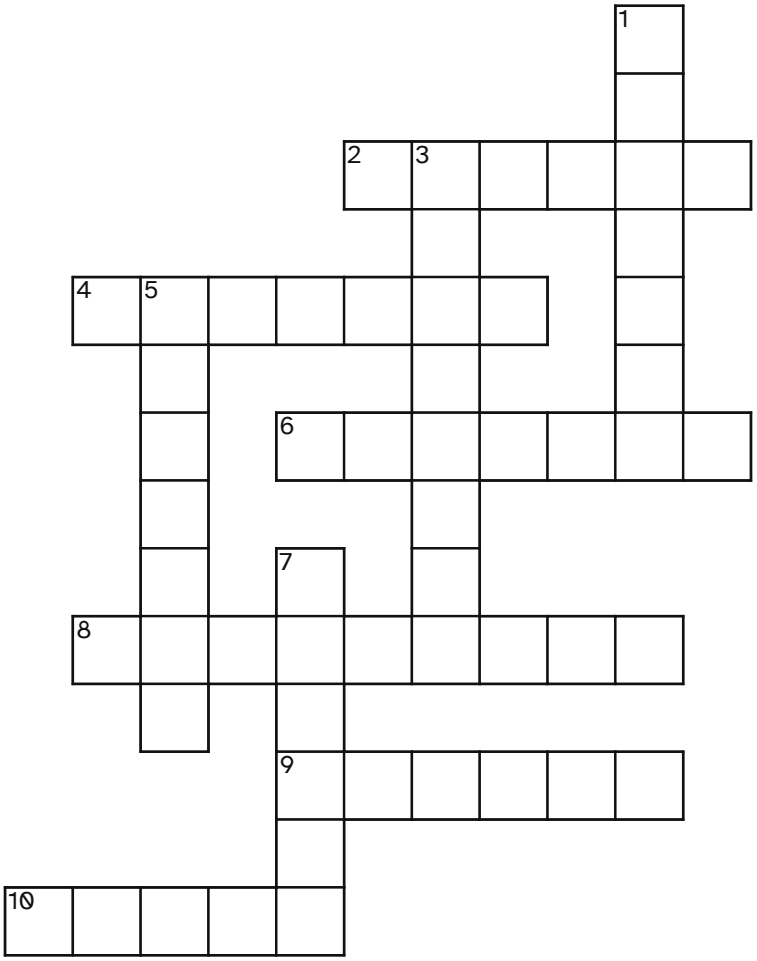
   > **A strong answer:** A strong answer should identify missing evidence such as ground checks, tree health, road access, market needs, habitat concerns and limits of the sensor data.

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AIRCRAFT BIOMASS CARBON HARVEST IMAGERY
INVENTORY LIDAR MAPPING SENSOR SURVEY

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ACROSS

2 Chemical element stored in vegetation rather than released to the air

4 Pictures of land or objects collected by cameras or similar equipment

6 Planned cutting and removal of trees for wood products

8 Detailed accounting of trees, including counts and usable wood

9 Systematic examination of an area to gather information

10 Laser pulses used from above to measure ground features and distance

DOWN

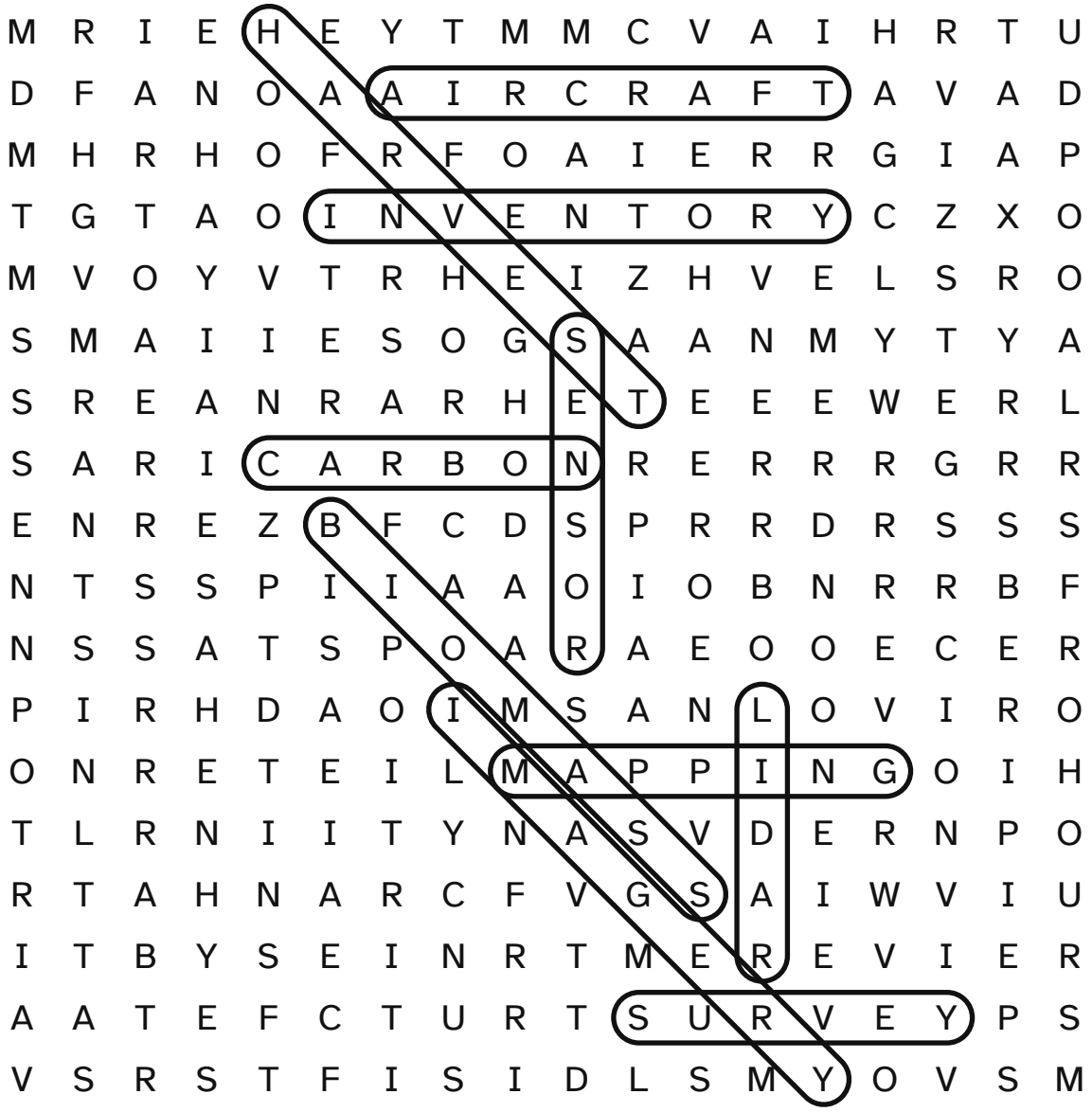
1 Total living material in trees and other plants

3 Flying vehicle that carries specialized equipment across broad areas

5 Creating visual layouts of an area's locations and features

7 Instrument that detects and records conditions or objects

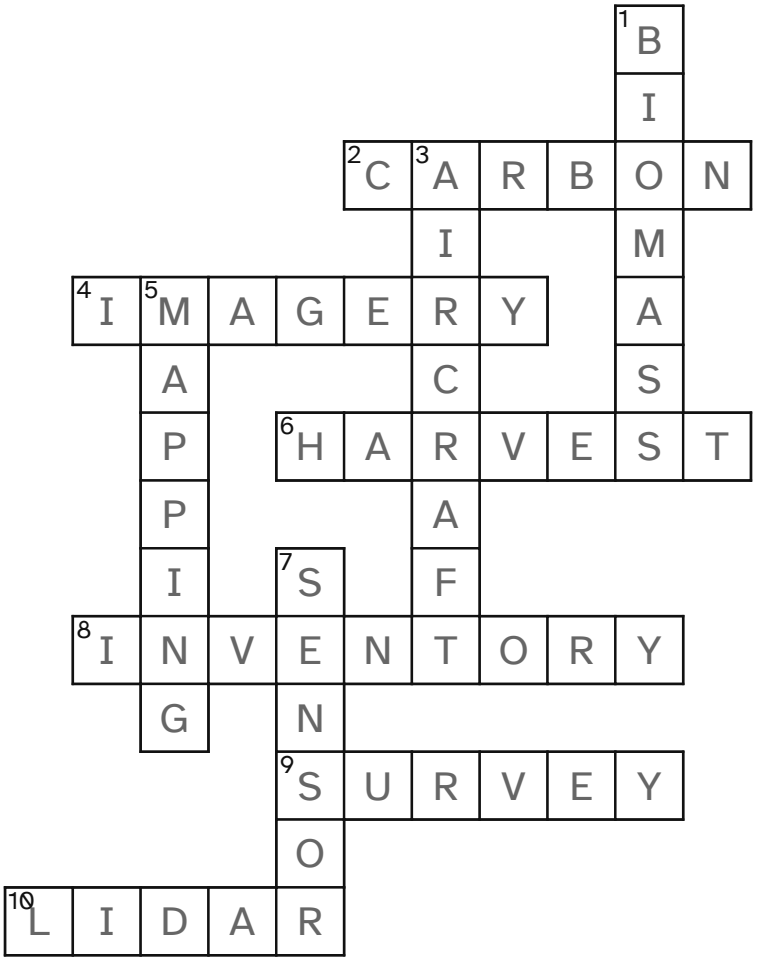
Forest Jobs Get Sharper Tools From the Air — answer key



AIRCRAFT BIOMASS CARBON HARVEST IMAGERY
INVENTORY LIDAR MAPPING SENSOR SURVEY

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Forest Jobs Get Sharper Tools From the Air — answer key



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Where this came from

This article was written for 3andB from the reporting below. It is not a reprint — the wording is ours and the facts are theirs.

Phys.org

"New eyes in the sky make timber harvesting and forest conservation easier and more efficient"

Published	Wednesday, November 25, 2026
Read by us on	Thursday, November 26, 2026

https://phys.org/news/2026-11-eyes-sky-timber-harvesting-forest.html

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The article with a note on each question, a word search, a crossword, and the answer key to both.

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