



NATURAL RESOURCES AVIATION:

Training to Protect Communities From Disaster

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The helicopter skimmed low over the swollen river, its rotors chopping the humid air. From above, the pilot could see water pushing against levees, debris snagged on bridge supports, and cattle huddled on narrow patches of high ground. A biologist in the back seat aimed a camera at the floodplain, capturing images for analysis.

This was not a rescue mission. No hoist or basket dangled beneath the aircraft. This was a survey flight—part of a broader effort to assess flood damage, track displaced wildlife, and help communities prepare for what comes next.

Floods: More Than Water on the Ground

This year's devastating floods across North America and around the world offered a vivid reminder of why natural resources aviation matters. Fixed-wing aircraft and helicopters offered perspectives ground

observers couldn't—monitoring levees, tracking debris fields, and identifying erosion that threatened bridges and highways.

What happens after the water recedes can be just as dangerous as a flood itself. Animals displaced by floods often cross roads or gather near populated areas, creating risks for motorists and agriculture. Dead livestock and wildlife trapped in floodwaters can contaminate drinking supplies, spread disease or attract predators.

Similar missions play out worldwide: In Canada, helicopters have surveyed flooded plains to help rural communities prepare for returning wildlife; in Australia, rotary-wing aircraft have been dispatched after monsoon rains to assess crocodile movement and livestock losses; and in Europe, fixed-wing patrols have mapped flood damage to protect villages and infrastructure.

"A lot of people assume once the floodwaters drop, the danger is over," one natural

resource pilot said. "But that's really when our work ramps up—tracking what's been left behind, from debris to carcasses to the movement of wildlife. That data goes straight to emergency managers and law enforcement."

Fire: Detecting Sparks Before They Spread

Helicopters are equally critical in forest management. A single fixed-wing patrol flight can cover hundreds of miles, scanning for smoke plumes. Once an anomaly is spotted, a helicopter can drop in lower to confirm whether it's a controlled burn, a campfire or the start of a wildfire.

Early detection often makes the difference between a contained blaze and a catastrophic event. Natural resource aircraft provide an early warning system, and their data feeds directly into firefighting strategy.

This isn't unique to the U.S. In Canada, helicopters fly routine patrols over boreal forests during peak fire season. In Australia,

both helicopters and fixed-wing aircraft are used to spot bushfires before they spread across parched terrain. In Europe, patrol flights are coordinated with ground brigades in Mediterranean regions vulnerable to summer wildfires.

"Low and slow is its own kind of danger," another pilot said. "We're flying close to the trees, often in hot, turbulent conditions. But the payoff is huge—spotting a fire before it's out of control saves lives and property."

Natural resources missions demand exceptional situational awareness, aircraft handling skill and teamwork—the same competencies that define mission-specific training across all sectors of public safety aviation.

Wildlife: From Habitats to Highways

Beyond floods and fire, natural resource aviation units support wildlife monitoring around the globe. Biologists rely on aircraft to map migratory patterns, track herds and evaluate habitat changes—supporting conservation and reducing community risk.

For example, mapping migratory bird routes helps airports anticipate strike risks. Tracking elk or deer herds after floods helps highway patrol organizations anticipate collisions. Observing predator movement reduces conflict with rural communities.

Protecting wildlife and protecting people often go hand in hand—and aviation makes both possible.

Data in Action

The data gathered in natural resources aviation missions rarely stays in the cockpit—it's shared across agencies:

- **Law Enforcement**—spotting illegal dumping, poaching or hazardous spills.
- **Public Health**—monitoring carcasses, standing water and other disease risks.
- **Transportation Agencies**—assessing road, bridge and rail damage after floods.
- **Emergency Management**—planning evacuation routes or community alerts.

Flights that start as environmental surveys often end up shaping public safety operations.

Training and Safety Challenges

Natural resource flying comes at heightened risk. Pilots often operate low to the ground, close to powerlines and trees. Missions can be long and monotonous, demanding sustained focus.



Weather is a constant factor, especially in flood and fire seasons.

Crew coordination adds another layer. Biologists and scientists are not always fluent in aviation procedures, so pilots must act as both operators and educators. Clear communication becomes critical.

"Flying low and slow with your eyes outside while someone else is focused on instruments or cameras takes teamwork and discipline," another natural resource pilot said. "These missions demand the same kind of structured, scenario-based training that underpins safe SAR and utility operations worldwide."

So, what makes natural resources aviation a unique training and safety challenge? It's a mission that blends science and public safety. It's about using aircraft to prevent disasters, protect communities, and prepare for what comes after the storm, the fire or the migration.

The public rarely hears about natural resource flights. The missions don't make the evening news the way rescues and water drops often do. But flood monitoring, fire detection and wildlife surveys form an essential safety net—not only in the U.S., but around the world.

Every hour flown in the service of natural resources is also an hour invested in community safety. The pilot over the flooded river isn't just supporting biologists; he or she is protecting families downstream, motorists on highways and farmers waiting for the waters to recede. The same can be said for aviators patrolling wildfires in Australia, monitoring rivers in Canada or mapping wildlife across Africa and Europe.

That's the quiet reality of natural resources aviation: It goes beyond the mission itself—wherever communities and ecosystems need protection—and the added responsibility brings with it an added need to focus on properly training for the mission.

ADVERTISER'S INDEX

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Bell Textron, Inc.	56
Cognyte	2
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Pilatus Business Aircraft.	55
S.A.F.E. Structure Designs, LLC ...	BB
Start Pac.....	8

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