



COPPERHEAD

ENVIRONMENTAL CONSULTING



COPPERHEAD AERIAL SERVICES STATEMENT OF QUALIFICATIONS

At Copperhead, we give clients access to unique views and data—from above, where elusive wildlife patterns become clear. Whether it's tracking migratory activity, conducting surveys, or supporting ground-based habitat assessments, we deliver aerial solutions most firms cannot directly provide.

From radio-telemetry tracking of bats and other animals to video/photography for renewable energy initiatives, we examine every project from multiple angles. Our six licensed pilots—three fly airplanes and three operate drones—are wildlife biologists and GIS experts. Their capability to fly at night when bats are active, combined with vast experience operating our two Cessna 172s and several drones, makes Copperhead uniquely responsive to client needs. Additionally, we have close partnerships with multiple helicopter companies throughout the United States, giving us valuable alternatives for projects such as raptor surveys.



Our aerial services include:

- Tracking foraging bats
- Tracking bat migration
- Roost survey support
- Raptor nest surveys
- Habitat assessments
- Solar and wind project support
- GIS/mapping projects
- Informational/promotional media

Our clients include:

- Oil & gas industry
- Solar energy
- Wind industry
- Mining industry (coal and others)
- Utilities/power plants
- Academic institutions & NGOs
- Commercial development
- State regulatory agencies
- Local, state, and federal governments
- U.S. military installations
- National Park Service
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- FHWA & state DOTs



Careful setup

To enable aerial tracking, our permitted biologists carefully capture bats and fit them with tiny, lightweight radio transmitters.

Focused pursuit

After tagged bats are released, our wildlife biologists use radio telemetry to track transmitter signals from the ground or the air. This helps us locate roosts, understand habitat use, track migration, and support conservation decisions.

A busy night for Bat 182

Sometimes our flights follow a single bat, like “Bat 182,” tracked by Copperhead CEO Mark Gumbert and Wildlife Biologist Ian Burns. Watch a video that traces Bat 182’s busy night of travel—including one curious, repetitive loop that looks more like a stock car race:
<https://www.relive.com/view/vr63WZo8dd6>



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Selected Project Experience of Our Team

Indiana Bat Spring Migration and Foraging Study, Arkansas

We deployed our two Cessna 172s—each staffed by a Copperhead pilot/wildlife biologist and a Copperhead navigator/wildlife biologist—to conduct aerial radio-telemetry tracking of 29 radio-tagged female Indiana bats (*Myotis sodalis*) during spring migration from multiple hibernacula. Flying night shifts to capture foraging and migration behavior and day shifts to pinpoint roost locations, the Copperhead team coordinated closely with ground crews to document 19 roost trees and track two bats on active migration flights of up to 128 kilometers. This multi-agency effort yielded critical data on migration timing, roost selection, and the influence of weather on bat activity for this federally endangered species.

Florida Bonneted Bat Acoustic Lure and Telemetry Study, Florida

Copperhead collaborated with the University of Florida to evaluate acoustic lure effectiveness and conduct aerial radio-telemetry tracking of the endangered Florida bonneted bat (*Eumops floridanus*). A Copperhead pilot/wildlife biologist and a Copperhead navigator/wildlife biologist tracked seven radio-tagged bats at night, documenting foraging movements of 6.5 to 20.5 kilometers between roost trees and feeding areas, while daytime grid-pattern searches identified a previously unknown natural roost tree. This aerial component complemented ground-based capture efforts, providing critical movement data to support conservation planning for this state-listed and federally listed species.

Little Brown Bat Spring Migration Tracking, Pennsylvania

Copperhead deployed a pilot/wildlife biologist and two navigator/wildlife biologists in our Cessna 172 to conduct aerial radio-telemetry tracking of little brown bats (*Myotis lucifugus*) migrating from a hibernaculum to spring maternity colonies. Flying at night to follow active foraging patterns and during the day to pinpoint roost locations, the team covered extensive distances to locate 15 distinct roosts, 13 of which were previously unknown to state agencies. This aerial effort significantly enhanced ground-based surveys, identifying more than 1,000 bats in anthropogenic structures and providing critical data to support conservation planning for this state-listed species.



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Raptor Survey for Wind Project, Iowa

Copperhead deployed two wildlife biologists aboard a contract helicopter to conduct a comprehensive aerial raptor nest survey for a proposed wind energy facility. Operating in strict accordance with U.S. Fish and Wildlife Service (USFWS) guidance, the team systematically scanned the project boundary and a 2-mile buffer to locate and characterize bald eagle and non-eagle raptor nests. The survey successfully identified eight bald eagle nests—including four actively in use—and documented 70 additional raptor nests, providing critical data to inform turbine siting and mitigate potential impacts on protected species.

Licking River Blue Water Trail Initiative, Kentucky

Copperhead deployed drone pilots and wildlife biologists across a five-county corridor to support the ongoing Licking River Blue Water Trail initiative for Kenton County and regional tourism partners. The Copperhead team combined aerial videography with ground-level kayaking expeditions to produce high-definition photos and videos for use in public meeting presentations and technical reports assessing the river's recreational potential. These drone-captured visuals documented existing conditions, identified access points, and highlighted scenic features, providing critical marketing assets and data to advance the trail's continued development and boost regional tourism.

Solar Project—Environmental Assessment and Progress Documentation, Kentucky

Copperhead deployed drone pilots to support a solar energy project in Garrard County. The pilots captured high-resolution aerial imagery that documented project progression from initial site preparation through commercial operation. These drone flights provided critical visual documentation to support environmental assessment filings and imagery to create a time-lapse record of the project's construction milestones for the developer and regulatory agencies. By combining aerial survey data with on-the-ground environmental compliance work, Copperhead delivered a comprehensive visual and technical record that streamlined permitting and showcased the development of a regenerative energy facility.



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Copperhead Fixed-Wing Aircraft Pilots

With more than 4,000 combined flight hours, our three licensed pilots support and manage projects throughout the Southeast, Midwest, and beyond. They fly two Cessna Sky Hawk 172 airplanes owned and operated by Copperhead Environmental Consulting. The planes are based out of airports in Richmond, KY, and Springfield, TN.

Mark Gumbert, Chief Executive Officer



- Fixed-wing aircraft pilot certification
- More than 2,300 hours of flight time
- Pioneered methods of tracking bats as they migrate
- Helped develop BrandenBark® artificial roost
- USFWS permit to handle threatened and endangered bat species
- Member of Southeastern Bat Diversity Network
- Founded Copperhead in 2004

Steve Samoray, Senior Wildlife Biologist



- Commercial pilot certification
- More than 1,500 hours of flight time
- More than 50 aerial telemetry bat projects
- Bald eagle nest surveys (as airplane pilot and helicopter navigator)
- Aerial surveys for quail and rattlesnakes
- USFWS permit to handle threatened and endangered bat species
- Former president of Southeastern Bat Diversity Network

Will Seiter, Wildlife Biologist II



- Fixed-wing aircraft pilot certification
- More than 350 hours of flight time
- Has worked extensively monitoring Indiana bat maternity colonies
- Aerial surveys for black bears
- USFWS permit to handle threatened and endangered bat species
- Experienced photographer and videographer



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Copperhead Unmanned Aircraft System Pilots

Our three licensed unmanned aircraft system (UAS) pilots operate a variety of drones, including a DJI Mavic Air 2, a DJI Air 2S, and a DJI Air 3S. Our UAS pilots use drones to collect images, video, and data that support wind and solar energy projects, environmental site assessments, wetland delineations, and other projects throughout the Southeast, Midwest, and beyond.

Ian Burns, Wildlife Biologist II



- Part 107 Remote Pilot Certification (FAA)
- USFWS permit to handle threatened and endangered bat species
- Wetland delineations
- BrandenBark® artificial roost installation
- Navigator for fixed-wing aircraft surveys
- Northeast, Midwest, and Ohio Bat Working Groups

Christopher McNeas, Senior GIS Specialist



- Part 107 Remote Pilot Certification (FAA)
- Post Baccalaureate Certification in Geographic Information Systems from Eastern Kentucky University
- Extensive experience with ArcGIS suite of products
- Kentucky Association of Mapping Professionals
- Society of Conservation GIS
- GIS Certificate Institute

Robbie Adelstein, Wildlife Biologist II



- Part 107 Remote Pilot Certification (FAA)
- USFWS permit to handle threatened and endangered bat species
- Extensive experience radio-tagging and setting up radio-telemetry data loggers
- Certificate of Training, USACE Wetland Delineation with Regional Supplements (Swamp School, LLC)
- GIS Certification (Marshall University)
- Open Water PADI Scuba Certification



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