

### SERVICES

- Site assessment for turbine, tower and powerline siting
- Monitor bird activity near structures
- Measure behavior of birds interacting with structures
- Monitor rates of nocturnal and diurnal bird migration/movements
- Identify migration and movement corridors for birds
- Identify periods when low-altitude flights occur
- Estimate collision-caused mortality
- Recommend mitigative strategies
- Endangered Species Surveys

ABR, Inc., Environmental Research and Services (founded in 1976 as Alaska Biological Research), has offices in Alaska and Oregon. We provide several environmental services:

- fish and wildlife studies
- ecological restoration
- wetland science
- environmental impact assessment
- ecological support for risk assessment
- GIS mapping and analyses
- aquatic sciences

An important component of our wildlife program includes studying interactions of birds with man-made structures. Our mobile laboratories are equipped with radar and night-vision equipment to study bird movements during permitting, site assessment, impact identification, and mitigation phases of projects. We've become leaders in innovative ways of monitoring birds and recommending mitigation at proposed and existing powerlines, wind turbines, airports, and communication towers.



Griffon Vulture near a turbine in Spain



Radar lab at a wind-energy facility in Oregon

### RESEARCH TEAM

**Brian Cooper**, *Wildlife Biologist*, leads our bird-studies program in the Pacific Northwest. His 22 years of experience include bird-collision assessment studies near airports, antenna fields, wind-energy facilities and communication towers. He has worked throughout North America and in Europe and Israel. Brian recently developed the use of radar to monitor threatened species—Marbled Murrelets—in old-growth forests of the Pacific Northwest and Newell's Shearwaters in Hawaii.

**Dr. Robert Day**, *Ornithologist*, leads our bird-studies program in Alaska. His 28 years of experience includes avian-powerline studies in Alaska and Hawaii, an assessment of the impact of wind-energy facilities on birds in Spain, and migration studies near proposed antenna fields in Alaska and the Midwest. Bob has worked with numerous clients to determine and mitigate impacts on birds. Bob's expertise includes bird behavior, marine ecology, and impact assessment.

**Todd Mabee**, *Ornithologist*, assists with the design and implementation of our bird-studies program in the Pacific Northwest. He has 14 years of experience with assessment studies in locations throughout the U.S. including New York, Minnesota, Colorado, Alaska, Hawaii, and the Pacific Northwest. Todd recently studied bird migration at existing and proposed wind-energy facilities in Oregon and Washington.

## REPRESENTATIVE PROJECTS

**Endangered seabird–powerline interactions, Kauai and Hawaii islands, Hawaii – *Kauai Electric, EPRI, and Hawaiian Electric Co.*** Monitored the behavior of nocturnal endangered Newell’s Shearwaters and Dark-rumped Petrels near powerline corridors.

**Bird migration, site-specific movements, and behavior at a windfarm in Tarifa, Spain - *Kenetech Windpower.***



**Use of radar to monitor Marbled Murrelet populations, Oregon and Washington – *USFS.*** Applied radar to test protocols for locating and monitoring murrelets in timber stands.

**Evaluating effects of mitigation on mortality of waterfowl and cranes near powerlines, Colorado – *Edison Electric Institute.*** Employed radar to assess the effectiveness of color-marking powerlines to reduce avian mortality.

**Siting of proposed windfarms in upstate, New York – *Niagara Mohawk Power Corporation.***



**Evaluating a proposed powerline for bird-collision mitigation measures, Tanana River, Alaska – *GVEA.*** Monitored bird migration patterns in relationship to a proposed powerline and proposed mitigation.

**Bird migration, movements, and mortality at proposed USAF antenna fields, Alaska, South Dakota, and Minnesota – *USAF.*** Determined nocturnal movements, flight behaviors, and flight corridors of birds in the vicinity of proposed radar facilities.

**Nocturnal bird migration at the Stateline, Vansycle, and Nine Canyon wind-energy projects in OR and WA – *FPL Energy Vansycle, Energy Northwest.*** Determined flight direction, rates, and altitudes of birds near proposed and existing wind-energy facilities.

**Elmendorf Airport-Bird hazard assessment, Alaska – *USAF.***



**Eider movements near a meteorological tower at Barrow, Alaska – *USFWS/North Slope Borough.*** Monitored eider movements near a meteorological tower and traditional native hunting camp during fall migration.

**Collision avoidance of eiders at Northstar Island, Alaska – *BP Exploration (Alaska) Inc.*** Helped in permit compliance by monitoring anti-collision lighting systems for eiders migrating past an oil-production island in the Beaufort Sea.

**Phase I assessment of avian impacts at windfarms in Poland – *AWS Scientific.*** Evaluated proposed wind farms for potential bird issues and data gaps that might be associated with this development.

## CLIENTS

- *BP Exploration (Alaska) Inc.*
- *Chugach Electric Assoc., Inc.*
- *Edison Electric Institute*
- *Electric Power Research Institute (EPRI)*
- *Florida Power & Light Energy Vansycle, LLC*
- *Golden Valley Electric Association, Inc. (GVEA)*
- *Hawaiian Electric Light Co.*
- *Israel Raptor Information Center*
- *Kauai Electric*
- *Niagara Mohawk Power Corporation*
- *Plum Creek Timber Co.*
- *Renewable Generation*
- *University of Washington (Olympic Natural Resource Center)*
- *U.S. Air Force*
- *U.S. Fish and Wildlife Service*
- *U.S. Forest Service*
- *Willamette Industries, Inc.*
- *Zond Pacific*

For more information, check our website [www.abrinc.com](http://www.abrinc.com) or contact our research team.

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