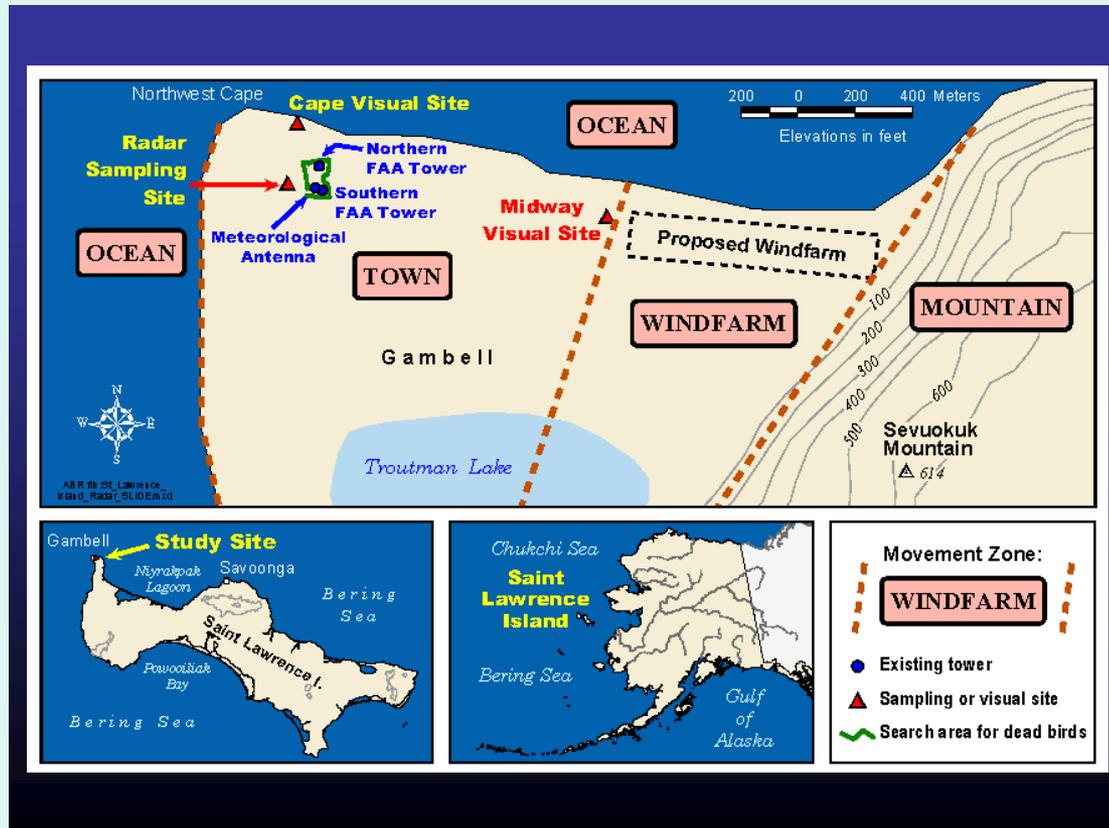


# Alaska Wind Energy

## Comprehensive Planning = Successful Projects

WEATS 2005 Alaska Training

Northwest Wildlife Consultants, Inc. and ABR, Inc.



# Brief Summary of Western Bat/Bird Wind Turbine Interactions and Habitat Mitigation Projects





# Bat collision mortality is not unique to wind energy facilities

Bats have also collided with the following structures:

- Lighthouses
- Communication towers
- Tall buildings
- Powerlines
- Fences



# Bat collision mortality at wind facilities is widespread

- Western states with fatalities include WA, OR, CA, WY, and CO
- Other states with fatalities include WV, PA, MN, IA, and WI
- Bat mortality has also been documented in Canada, Germany, Sweden, Spain and Australia
- Injured bats are occasionally found



# Species of bat fatalities

- Of 46 species of bats in North America, 11 have been found as fatalities at wind facilities – medium to large-sized turbines
- 7 of the 11 species have been found at Western wind facilities
- No federally endangered or threatened bats have been found at a U.S. wind energy facility
- Eastern US wind projects are experiencing high fatality numbers – likely due to forested environment. High fatality numbers found when wind speeds were



# Bat mortality in the West is lower than in the Midwest and East

Region	Number of studies	#MW monitored	Av.#/turbine/ #/MW/yr (estimated)	~ Total Estimated Mortality/yr
Pacific Northwest	4 Van., SL, NC, KL	397	1.2 / 1.7 (a range of 0.7 to 3.2/turbine/yr)	675
Rocky Mountains	2	68	1.2 / 1.9	129
Upper Midwest	4	254	1.7 / 2.7	686
East	2	68	46.3 / 32.0	2176
<b>Overall</b>	<b>12</b>	<b>787</b>	<b>3.4 / 4.6</b>	<b>3620</b>

Cooperative effort between industry and  
other groups

## The Bat and Wind Energy Cooperative

*Co-funded by:*

American Wind Energy Association

Bat Conservation International

National Renewable Energy Lab, DOE

*Includes:*

State and federal agencies,  
private industry, academic  
institutions and non-governmental  
organizations



# Collaborative effort initiated in mid-2004

- Develop relationships among diverse partners with differing goals, mandates and objectives
- Assemble resources needed to conduct research needs to solve problems
- Enhance credibility of findings
- Solve the problem and make turbines more “bat friendly”
- Share Information

Fact Sheet available at [www.nationalwind.org](http://www.nationalwind.org)

# Field research was conducted at two wind projects in eastern U. S. in summer of 2004

*Results posted at NWCC and Bat Conservation International web site*

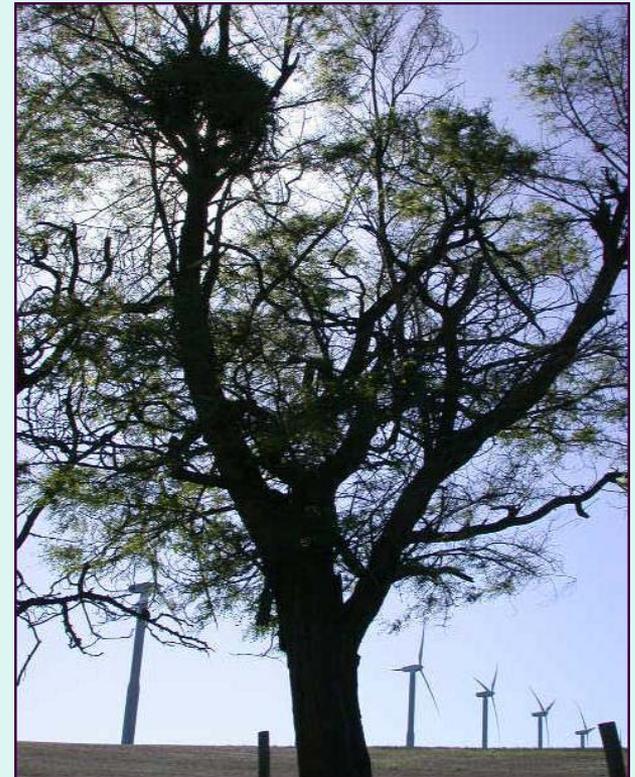


# Avian Interactions

- **Much has been learned** since the days of high raptor kills at the Altamont in California
- **Technology advances in turbines** have resulted in more “bird friendly” wind energy facilities, sites screened better
- **Many questions still remain** such as population impacts, biological significance and potential indirect impacts such as grassland bird displacement, impacts to sage grouse or other local or regional species of concern – eiders in Alaska
- **Efforts are underway** to understand the benefits of renewable energy generation on the natural environment vs. possible impacts on the environment from non-renewable generation
- **Unique situations** (some California projects) have resulted in curtailment of turbine operations during periods of high bird use as an effort to reduce high levels of mortalities

## Minimizing potential project impacts:

- Some level of pre-development ecological studies and impact assessments are required in most states to “site” the facility in appropriate areas
- Pre-construction Site Evaluations are important
- It’s a young industry!



# Northwest avian fatality monitoring study results

- Five projects located in eastern Oregon and Washington were studied a minimum of one year after construction – 1-2.5 years. Project size: 16 to 454 turbines
- Fatality estimates from four projects with comparable study methods indicates an annual fatality range of
  - 0.6 to 3.6 birds per turbine per year
  - 0 to .07 raptors per turbine per year

*39 species 63% of composition was horned larks, ring-necked pheasants, golden crowned-kinglet, western meadowlark and gray partridge*

- Reporting of incidental discoveries of bird and bat carcasses or injured animals is on-going at all five projects

# Limiting Impacts to birds and other biological resources

- It's a team effort! Includes studying the site and the ecology
- The developers involve agency biologists, local people and landowners



# Technical Advisory Committees (TAC)

- TACs or Local Stakeholder Groups can be used during planning and/or after construction for the operations phase
- Each project has a group of interested citizens, agency biologists and landowners.
- Members include State biologists, USFWS biologists and/or law enforcement personnel, Audubon or local environmental group, landowners, County Planning Dept. Rep., the developer/operator, wildlife consultants and advisory members

Habitat and topography of small, medium and large size wind projects varies...gentle rolling hills, prominent ridges of Stateline, and near shoreline of rivers, lakes and coast



Pre-construction studies include delineating habitat/land cover types to identify vegetative types *and* to assess direct and indirect impacts on various plants and animals



# Habitat mitigation may include habitat *improvement* projects or Conservation Easements

- Exclusion of cattle or horses to relieve grazing pressure on native bunchgrass (seed production) and to eliminate trampling of animal burrows (exclusion may be temporary or permanent)
- Controlling weeds and seeding with native seed mixtures
- Temporarily disturbed areas seeded with “native-like” seed mixtures
- Sites are monitored to determine success of goals established in consultation with the state biologists



# Clean, renewable energy for now and future generations



# Feasibility Studies in Southeast and Southwest Alaska



## Wind Prospecting and Wildlife Screening at Hoonah



# Acknowledgements



*Bat slides* — Merlin Tuttle and Ed Arnett Bat Conservation International and Bob Gritski, NWC, Inc.

*Bat text* — Greg Johnson WEST Inc.

## *Pre-construction and Operational Monitoring Studies*

FPL Energy

Energy Northwest

Northwestern Wind Power

SeaWest Wind Power

Bonneville Power Admin.

Last Mile Electric Cooperative

Numerous Consulting Firms

Nat'l Renewable Energy Lab

Nat'l Wind Coordinating Committee

Bristol Bay Native Corp.

Southeast Alaska Native Corp

Columbia Energy Partners

Eurus Corp.

PPM Energy

Karen Kronner  
President  
Northwest Wildlife Consultants, Inc.  
815 NW 4<sup>th</sup> St.  
Pendleton, Oregon 97801  
ph 541-278-2987

