

What data exist on bird & bat use of potential wind energy sites in New York & the Eastern US?

Panelists

Todd J. Mabee: *ABR, Inc. – Chair*

Tom Kunz: *Boston University – co Chair*

Bill Evans: *Old Bird Inc.*

Adam Kelly: *DeTect Inc.*

Jessica Kerns: *West Inc.*

Ron Larkin: *Illinois Natural History Survey*

Al Manville: *USFWS*

Bob Roy: *Woodlot Alternatives Inc.*

Dale Strickland: *West Inc.*

Dave Young: *West Inc.*



Blackburnian Warbler



From Kunz & Fenton (2003)

Public data: Bird distribution & abundance

- NY Breeding bird atlas: 2000–2005 (draft) & 1980–1985
<http://www.dec.state.ny.us/website/dfwmr/wildlife/bba>
- USGS Breeding Bird Surveys
<http://www.pwrc.usgs.gov/bbs/results>
- New York Natural Heritage Program
<http://www.dec.state.ny.us/website/dfwmr/heritage>
- National Audubon Christmas Bird Counts
<http://www.audubon.org/bird/cbc/hr/index.html>
- Waterfowl: <http://www.fws.gov/waterfowlsurveys>
- Gap Analysis <http://gapanalysis.nbii.gov/portal>

Public data: Bird migration

- Bird Observatories:
<http://www.nmnh.si.edu/BIRDNET/OBSERVATORY.html>
 - Braddock Bay Bird Observatory: <http://www.bbbo.org>
 - Derby Hill Bird Observatory:
<http://www.audubon.org/chapter/ny/onondaga/derby.html>
- International, National, & State Ornithological societies:
http://www.ksbirds.org/kos/state_os.htm
 - New York State Ornithological Association: <http://www.nybirds.org>
- Shorebirds: regional & international shorebird monitoring
<http://www.shorebirdworld.org/fromthefield/PRISM/PRISM1.htm>
- Raptors: Hawk Migration Association of North America
<http://www.hmana.org>
- Avian acoustics/nocturnal bird migration: (Old Bird Inc.)
avian<http://www.oldbird.org/pubs.htm>

Public data: other sources for birds

- USFWS
 - Bird publications: http://library.fws.gov/bird_pubsindex.htm
 - Birds of Conservation Concern 2002: http://library.fws.gov/Bird_Publications/BCC2002.pdf
 - Bird Survey reports: (many species) <http://www.fws.gov/migratorybirds/reports/reports.html>
 - Endangered species: <http://www.fws.gov/endangered/wildlife.html>
 - Recovery plans: <http://www.fws.gov/northeast/nyfo/es/recoveryplans.htm>
 - Critical habitat designations: <http://criticalhabitat.fws.gov/>
 - National Wetlands Inventory <http://www.fws.gov/nwi>
- Cornell Laboratory of Ornithology: <http://www.birds.cornell.edu>
- National Renewable Energy Laboratory: http://www.nrel.gov/wind/avian_lit.html
- American Wind Energy Association: <http://www.awea.org>

Bird & bat literature from wind projects: peer-reviewed

- Mabee et al. (*In press*). Nocturnal bird migration over an Appalachian Ridge. *Wildlife Society Bulletin*.
- Reynolds. (*In press*). Monitoring the potential impact of a wind development site on bats in the Northeast. *Journal of Wildlife Management*.
- Kerlinger et al. (*In review*). FAA obstruction lighting & night migrant fatalities at wind turbines in North America: a review of data from existing studies. *Wilson Bulletin*.
- Larkin. 2006. Migrating bats interacting with wind turbines: what birds can tell us. *Bat Research News* Summer 2006.
- Mabee and Cooper. 2004. Nocturnal bird migration in northeastern Oregon and southeastern Washington. *Northwestern Naturalist* 85:39-47.
- Johnson et al. 2004. Bat activity, composition and collision mortality at a large wind plant in Minnesota. *Wildlife Society Bulletin* 32:1278-1288.
- Williams, W. 2004. When blade meets bat: Unexpected bat kills threaten future wind farms. *Scientific American*. February 2004.
- Johnson et al. 2003. Mortality of bats at a large-scale wind power development at Buffalo Ridge, Minnesota. *American Midland Naturalist* 150: 332-342.
- Osborn et al. 2000. Bird mortality associated with wind turbines at the Buffalo Ridge Wind Resource Area, Minnesota. *American Midland Naturalist* 143: 41-52
- Harmata et al. 1999. Using marine surveillance radar to study bird movements and impact assessment. *Wildlife Society Bulletin* 27: 44-52.

Bird & bat literature from wind projects, communication towers, & powerlines: secondary

- Arnett, E. 2005. Relationships between bats and wind turbines in PA and WV.
- Johnson & Arnett 2004. A bibliography of bat interactions with wind turbines. (includes both peer-reviewed and secondary references)
- Erickson et al. 2001. Avian collisions with wind turbines: a summary of existing studies and comparisons to other sources of avian collision mortality in the US
- Kerlinger, P. 2000. Avian mortality at communication towers: a review of recent literature, research, and methodology.
- Evans, B. 1998. Deadly towers. *Living Bird* 17.
- Reese and Hebert 1995. Avian collision and electrocution: an annotated bibliography
- Avery 1980. Avian mortality at manmade structures: an annotated bibliography. USFWS
- Clark, A.: 1966-?, long-term monitoring of TV towers in Erie County, NY during fall migration, >20,000 fatalities of 110 species
- Howard, W.: 1963-?, long term monitoring of TV tower in NY, > 500 fatalities/fall migration over 20 years; highest fall kill of 3,862 in 1977

Literature: general references

- Burger and Liner 2005. Important bird areas of New York.
- The Birds of North America
- Mammalian Species Accounts--for bats (American Society of Mammalogists)
- Kunz, T. H., and M. B. Fenton. 2003. Bat Ecology.
- Bird migration: too many sources to list - see literature cited in reports

Summary of Preconstruction studies at proposed wind projects: Spring

Location	<u>Diurnal surveys</u>				<u>Nocturnal surveys</u>				<u>Telemetry</u>	<u>Public?</u>		Source
	BBS	Raptor	Bird	Rare	X radar	NVG	<u>Acoustic</u>		Bat	Yes	No	
							Bird	Bat				
Maine	2	2			3			2		3	1	Woodlot
New Hampshire								1			1	Woodlot
Vermont		2			3		2	3		5		Old Bird/Woodlot
New York												
<i>Northern</i>	2	2	1		6	2		4	1	3	5	ABR/Woodlot
<i>Southeastern</i>	1		1		2			2		1	1	Woodlot
<i>Central</i>	3	4			7	1	1	6		3	4	ABR/Old Bird/Woodlot
<i>Western</i>	4	2	4	1	8	2	1	7		4	10	ABR/Cornell/WEST/Woodlot
New York total	10	8	6	1	23	5	2	19	1	11	20	
Massachusetts				1						1		Woodlot
Pennsylvania		1			5	3	1	2		1	5	ABR/Old Bird/Woodlot
Maryland					2		2	1			4	ABR/Old Bird/Woodlot
Virginia												
West Virginia					2	1		1		1	1	ABR/Woodlot
Eastern US	12	13	6	2	38	9	7	29	1	22	32	

Summary of Preconstruction studies at proposed wind projects: Fall

Location	<u>Diurnal surveys</u>		<u>Nocturnal surveys</u>				<u>Telemetry</u>		<u>Public?</u>		Source
	Raptor	Bird Rare	X radar	NVG	<u>Acoustic</u> Bird	Bat	Bat	Yes	No		
Maine	1		3			3		3	1	Woodlot	
New Hampshire						1			1	Woodlot	
Vermont	3		3		1	4		5		Old Bird/Woodlot	
New York											
<i>Northern</i>	2	3	6	2		2		5	1	ABR/Woodlot	
<i>Southeastern</i>		1	2			2		1	1	Woodlot	
<i>Central</i>	5		6	1	1	8		4	5	ABR/Old Bird/Woodlot	
<i>Western</i>	2	3	1	7		1	5	4	4	ABR/Old Bird/WEST/Woodlot	
New York total	9	7	1	21	3	2	17	0	0	14	11
Massachusetts											
Pennsylvania			5	5	1			1	5	ABR/Old Bird	
Maryland			2		2	1			4	ABR/Old Bird/Woodlot	
Virginia			1	1					1	ABR	
West Virginia			2	1		1		1	1	ABR/Woodlot	
Eastern US	13	7	1	37	10	6	27	0	0	24	24

Other Preconstruction studies at proposed wind projects

- Avian acoustic & X band radar comparisons:
 - Central NY, fall 2004: strong correlation between techniques.
 - Central NY, spring 2005: moderate correlation between techniques.

Discussion topics

Do enough reliable data exist to:

- Characterize bird and bat use in selected regions of NY?
 - Nightly, seasonally, annually, interannually?
- Minimize/eliminate pre-construction surveys ?
- Extrapolate inferences from preconstruction studies to “nearby” developed sites?
 - Location appears to be important
- Identify the most valuable methods (i.e., for predicting fatalities)?
 - Insight from Mountaineer and Meyersdale sites?
 - Insight from diurnal point counts?
- Characterize bird & bat use of mountain ridges during migration?
 - Spring and Fall?
 - What is an appropriate study duration?
 - What are acceptable methods?
(e.g., X band radar, Doppler radar, radiotelemetry, acoustics, night vision etc?)
- Prioritize site selection for wind development?
 - What criteria should be used?

Discussion topics

- Can or should there be a single repository for all wind project data in New York? Regionally? Nationally?
- Are there ways to facilitate science-based decision making (e.g., summarizing existing studies in NY)?
- What is the “shelf-life” of wind project data - (i.e., how long is it relevant) ?
 - Who would decide this?

