

Beech Mountain Wind Farm Carcass Monitoring Report

Organization: WNC Small Wind Initiative
Research Location: SWI Research & Demonstration Site
Beech Mountain, NC
Dates of study: 4/14/05 – 5/20/05 (spring migration)

Version	Date	Author	Change Description
1.0	6/8/05	BJS	Created report
2.0	11/28/05	BJS	Added turbine configurations to Table 1

Background

The North Carolina Small Wind Initiative (SWI) operates a Small Wind Turbine Research & Demonstration Site on Beech Mountain, North Carolina. Six turbines are installed at the site for the purpose of public demonstration and education, regional small wind turbine research activities, and to generate green power for the TVA Green Power Switch program. Table 1 describes the turbines and their associated towers.

The SWI team joined Curtis Smalling of the Audubon Society to perform an Avian Impact Study at the site during the spring migration period of 2005.

Table 1 Beech Mountain Test Turbines

Turbine Description	Rated Power (watts)	Tower Height (feet)	Tower Type
African Wind Power AWP 3.6 Grid-tie	1500	105	Tilt-up, guyed
Bergey XL.1 24VDC	1000	105	Tilt-up, guyed
Southwest Windpower AirX 24VDC	400	35	Tilt-up, guyed
Southwest Windpower Whisper H40 48VDC	900	80	Tilt-up, guyed
Southwest Windpower Whisper 175 48VDC	3000	70	Tilt-up, guyed
Jacobs 31-20 Grid-tie	20,000	120	Freestanding lattice

4/14/05: Training

Curtis Smalling visited the wind site to train the SWI team on Carcass Monitoring research procedures (figure 1). The team received (attached):

- Detailed monitoring instructions entitled: “*Beech Mountain Wind Farm Carcass Monitoring*”
- Blank forms entitled: “*Carcass Removal Study*”
- Alpha codes for bird names
- Marker flags

Curtis led the team on the first “bird sweep”, no carcasses were found.

Per Curtis’ request, a layout of the wind site was created labeling each tower and tower quadrants. Table 2 describes the tower labeling scheme.



Figure 1: Mike Dooraghi (left) and Curtis Smalling (right)

Table 2 Tower Identification

Tower	ID
Bergey XL.1	B
AirX	X
AWP 3.6	A
Whisper 175	1
Whisper H40	H
Jacobs 31-20	J
Communication tower (Nextel)	C

Carcass Monitoring

The team was instructed to perform carcass searches at least weekly and after significant weather events (low cloud ceiling, fog) during peak migration times (April-May 10). Searches were conducted as early in the day as possible to reduce the chance of carcass removal by other animals.

A “bird sweep” involves inspecting the ground around each tower in a back-and-forth manner, looking for bird carcasses. The swept area covers the guy wire diameter plus about 10 feet. If the tower has no guy wires, the diameter of the swept area is approximately the tower height. Table 3 lists the documented bird sweeps performed at the site.

Table 3 Carcass Monitoring Log

Date	Activity	Findings
4/14/05	Training, bird sweep	None
4/22/05	Bird sweep after storm	None
4/27/05	Bird sweep	None
5/4/05	Bird sweep	None
5/9/05	Bird sweep	None
5/10/05	Bird sweep	None
5/13/05	Bird sweep	None
5/20/05	Bird sweep	None

Further Research

Our intention is to resume carcass monitoring at the site during the fall migration period, August 15 – October 20.