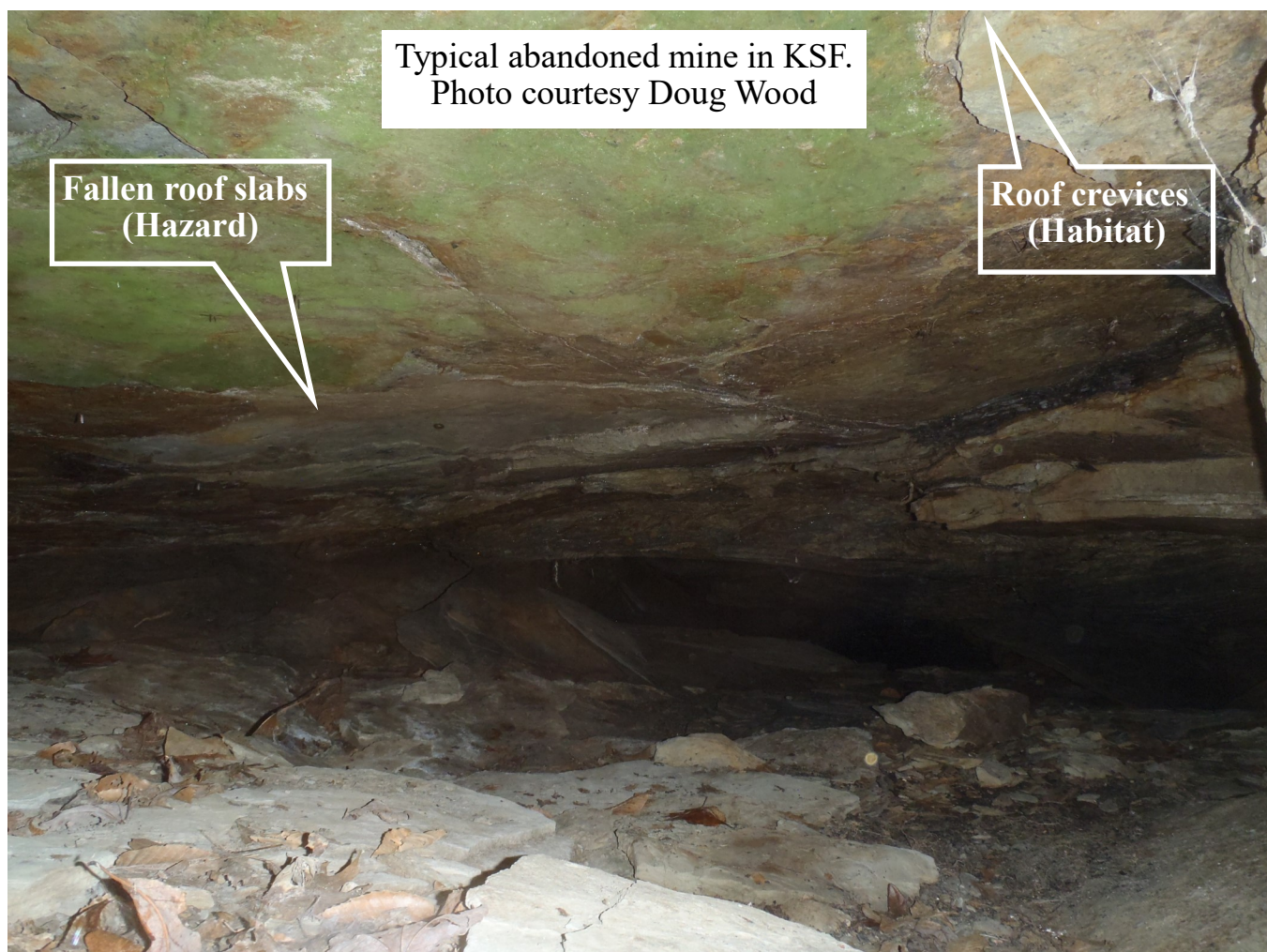




Nora Lea, Kanawha State Forest's very own Northern Long-eared Bat  
Courtesy, All Star Ecology

# A Protective Bat Gate: ...for a Long Winter's Nap

The metal gate you see over the portal to the abandoned mine in front of you serves two purposes: it keeps humans from harm and it prevents bats from being disturbed during their critical winter hibernation. Three types of bat surveys provide evidence of hibernating bats at potential hibernacula: Direct observations within such habitats during hibernation periods, autumn swarming observations at mine portals and cave openings, and spring emergence observations at portals and openings. The most accurate method is the direct observation method, but the other two are very useful in situations that pose danger to surveyors if they enter a potential hibernaculum. Abandoned mines are particularly dangerous because of the high potential for roof cave-ins or side-wall blowouts.



Loose roof slabs of rock can fall on professional bat biologists and daredevil teenagers as well. This hazard leads to two tough questions asked by land managers in coal country: "How do we keep kids out of these dangerous abandoned mines?" and "How do we protect our rare underground-dwelling wildlife?" The bat gate you see before you is a good example of how wise managers of public recreation and wildlife conservation can respond to both of these challenges, with the help of science, engineering, and concerned citizens.

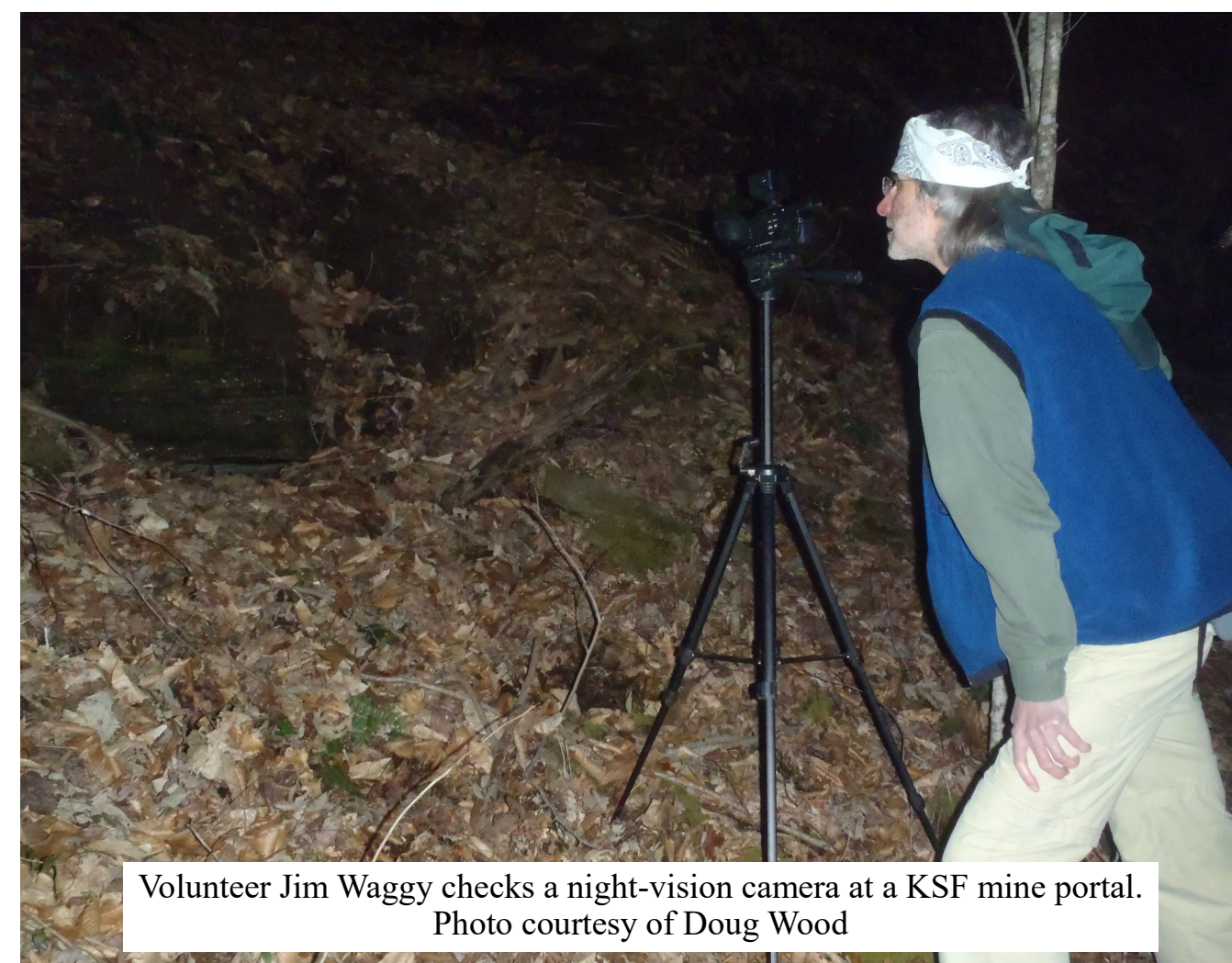


Volunteers Barb Koster and Doug Wood help adjust a harp trap at a KSF mine portal.  
Photo courtesy of Dianne Anestis

During April of 2015, the first ever KSF hibernacula surveys were conducted by All-Star Ecology with assistance from volunteers. The survey funding effort was spearheaded by the Mary Ingles Trail Blazers, the Kanawha Forest Coalition, and the Kana-

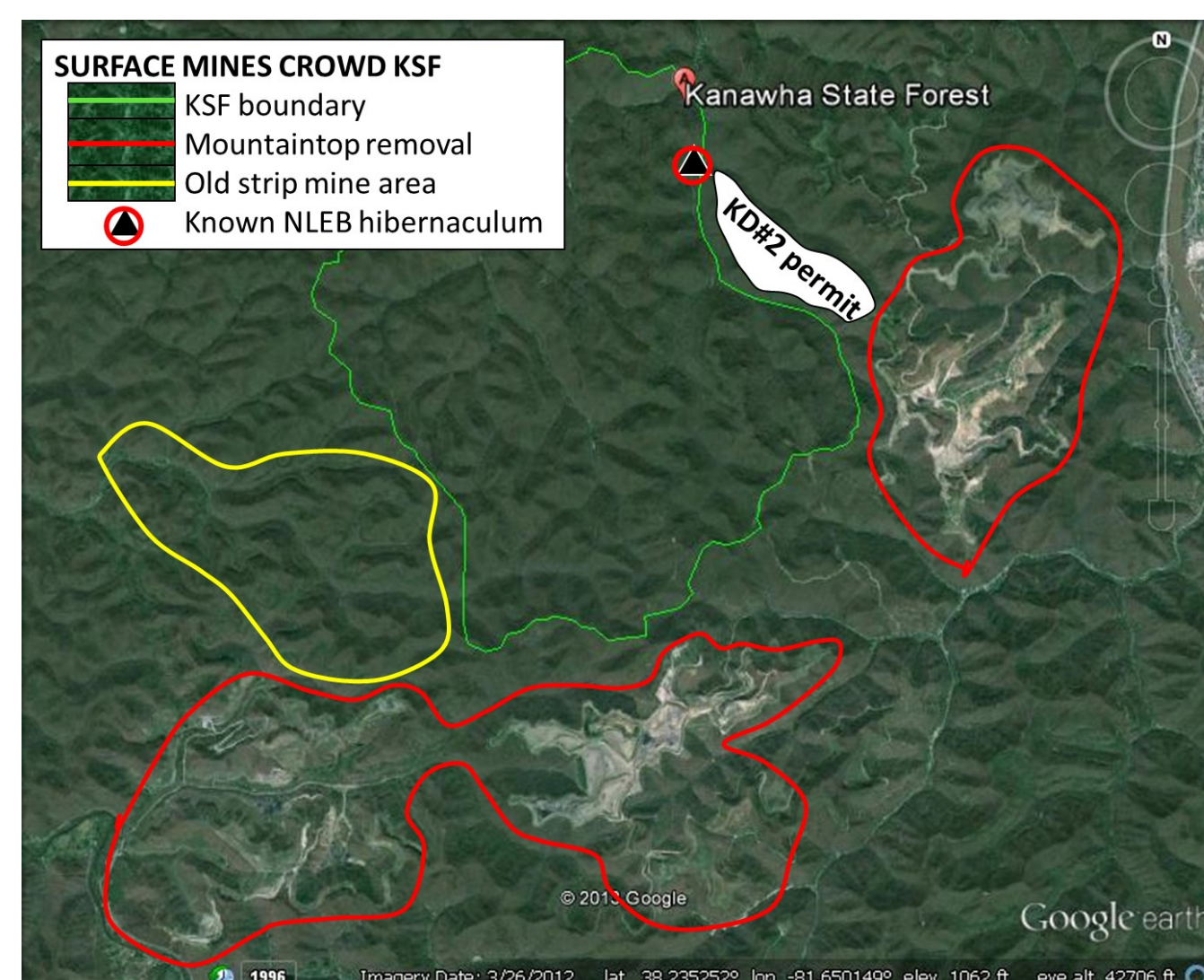
wha Trail Club, while approval was granted by the U.S. Fish and Wildlife Service and the WV Dept. of Natural Resources (WVDNR). Volunteers came from organizing clubs and the Kanawha Valley Master Naturalists. Biologists captured a healthy female Northern Long-eared Bat (NLEB), nicknamed *Nora Lea* exiting Portal 6 (see her photo at the upper left of this sign). Several other species were identified using acoustic detection equipment and night-vision cameras.

Phase I Cave/Mine Portal Assessment Data Sheet	
Location:	Kanawha State Forest, Portal 6
Observers:	Neil Lallier, Jesse DeLoCruz, Eric Schrader
Latitude, Longitude:	38.275302, -81.640010
Date:	4/18/15
Time:	14:00
Temperature (outside):	41.4°F
Portal Name or Number - 6	
Opening (cave, quarry, shaft, or adit)	Cave
Opening Size: Height x Width (or Diameter)	50" x 110"
Internal Dimensions: Height x Width	N/A
Slope (up or down from entrance)	Slope down
Entrance Stable?	Some evidence of collapse (fallen rocks)
Direction of Airflow (In or out?)	Out
Amount of Airflow (e.g., none, slight, heavy)	Slight
Air warmer or cooler than outside temp.	cooler
Humidity	70%
Evidence of toxic gases? (Describe)	No
Evidence of collapse?	Yes
Ceiling Condition	Evidence of collapse
Amount of water in opening	Some, but not significant
Evidence of past flooding?	N/A
Observed length of portal	~100'
Distance to nearest water source	~300'
% Canopy Cover at portal entrance	~78%
Foraging Signs? (e.g., moth wings)	No evidence
Are any portals suspected or known to be connected? Which ones?	
Yes, portal 5 due to proximity and passage direction.	
Any observable side passages?	
Yes, one large passage off to left.	
Describe the number and size of any observable rooms or chambers.	
Large main cavern ~50' wide and ~75' long.	
Additional comments:	
41% humidity outside, 55°F inside	



Volunteer Jim Waggy checks a night-vision camera at a KSF mine portal.  
Photo courtesy of Doug Wood

NLEBs have a sparse hibernation distribution in western WV, so the abandoned mines in KSF and vicinity may act as winter bat refugia free from deadly White Nose Syndrome. The incredible diversity of bats in KSF (nine species known in 2018) reflects the legacy of care that WVDNR staff and friends of the Forest have given to this green gem now surrounded by so much destroyed and degraded bat habitat (see map below).

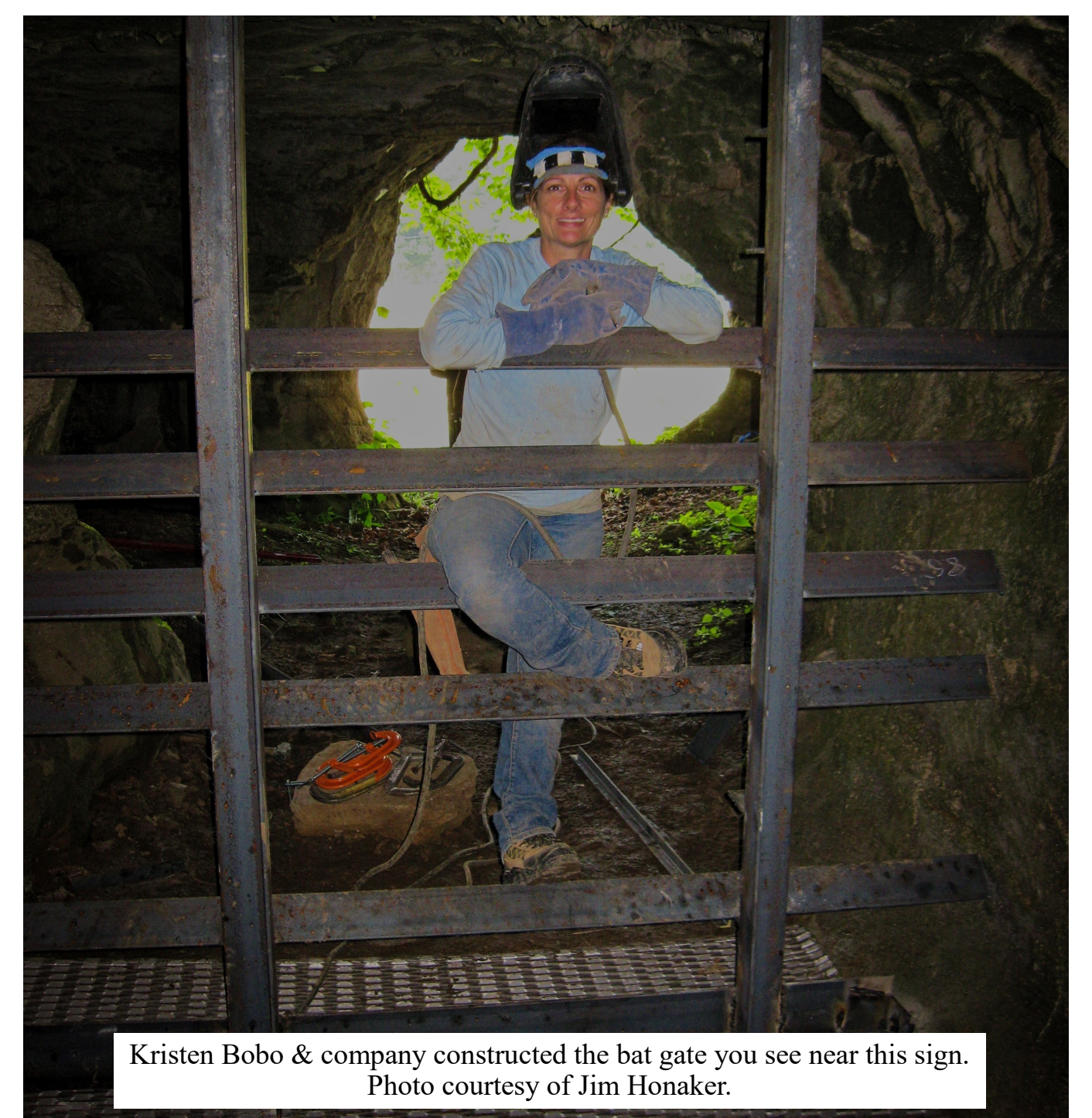


The WVDNR managers balance the needs of human users of KSF with those of the four-legged and winged users of the Forest. A trail project was proposed to pass by Portal 6. An informal trail had already developed by happenstance and there was evidence that curious "explorers" were crawling into the mine. The mine had to be sealed, but in a manner that allowed bat passage and did not alter the air flow through the mine, a critical component for the survival of hibernating bats. WV Abandoned Mine Lands staff visited the site, but determined that funding for a bat gate would not be available in the near future due to higher agency priorities. The WVDNR budget was too tight to help financially, although staff time was dedicated to it. Financial support for this **Kanawha State Forest Foundation** project came primarily from the Hot Rod Devils' **Rock the Park** event, the C. C. **Dickinson Family Giving Circle** (a donor-designated fund through the Greater Kanawha Valley Foundation), and the **Maier Foundation**.



## MAIER FOUNDATION

As with the bat survey, federal and state agencies granted the appropriate permissions for design and construction of the protective bat gate you see here. Kristen Bobo and company performed the work with assistance from volunteers. Other support came from KSF Superintendent Kevin Dials (for whom this trail is named), the Kanawha Valley Master Naturalists, and biology classes from the University of Charleston and WV State University.



Kristen Bobo & company constructed the bat gate you see near this sign.  
Photo courtesy of Jim Honaker.