

## Patuxent Wildlife Research Center

# Nocturnal Bird Migration through the Central Appalachians



**The Challenge:** Concerns have arisen about the potential impacts of wind power development in the Appalachians on migrating birds, creating a critical need for information on their distribution and flight characteristics as they pass through the region. This study focuses on the spatial and temporal distribution of nocturnally migrating birds in the Central Appalachians (MD, VA, WV). The overall objective is to increase our understanding of bird migration through the region, so that informed and scientifically sound recommendations can be made to reduce the risk to migrating birds of wind power projects.



**The Science:** The passage of migrating birds was documented primarily through the use of sound recording. Most songbirds call when in migratory flight, and these flight calls can be used to index their abundance. Sound recorders were operated simultaneously at over 30 sites in the region during five migration seasons, generating a huge archive of sound recordings, with hundreds of thousands of flight calls recorded. In addition, at three sites in two migration seasons, the passage of migrants was also sampled with portable radar. This technique detects all migrants aloft, not just those that emit calls, and samples their altitudinal distribution.



**The Future:** In both spring and fall, roughly 30% of the migrants detected by the radar were flying less than 200 m above ground, the altitudinal zone that wind turbines occupy. The flight call data document the spatio-temporal distribution of low-flying migrants through both nights and seasons. The relationship of migrant abundance to location, topography, and weather variables is being modeled to identify where and when migrants might be abundant in the lower airspace. This information will aid decisions on the siting of wind turbines in the region, and provide guidelines on their operation to reduce the risk to migrating birds.

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