# THE SCIENCE OF MANAGING TRANSMISSION CORRIDORS FOR WILDLIFE

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**It was a beautiful early spring day somewhere in the central Appalachians. My colleague, Sam Droege from the United States Geological Survey (USGS), and I led a team of students and researchers to study an unusual area that we knew was home to many rare species of plants and animals. The area we were exploring was rocky and rugged, with steep slopes and deep ravines. Fortunately, the entire site was crisscrossed with several energy transmission corridors. We planned to follow the cleared paths or "rights of way" along these transmission corridors to explore this particular mountainside.**

Because I had been to the site before, I was sent ahead to scout the terrain and figure out how best to use our limited time on the mountain. After one detour through the woods to avoid a particularly steep ravine, I emerged onto the cleared right-of-way, where I expected to see Sam and the students come toward me at any moment.

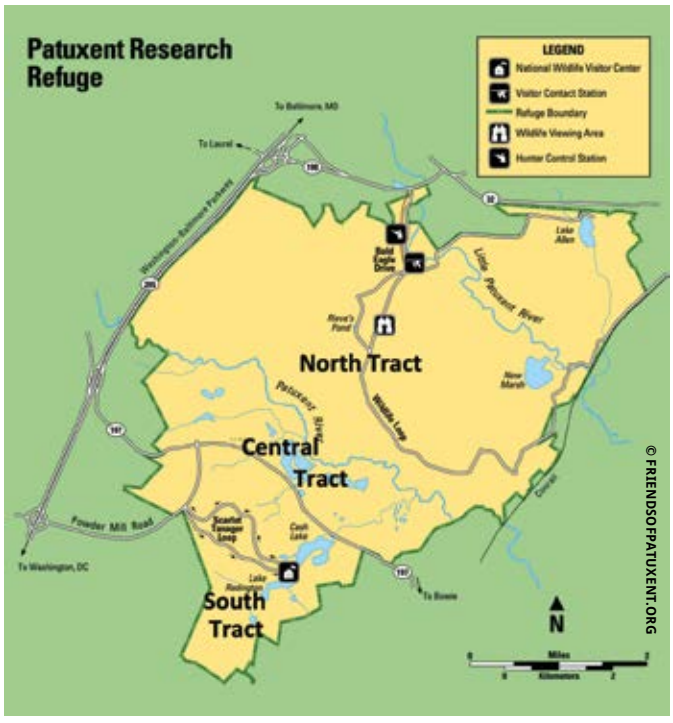
Instead, I found myself in close quarters with a very large and disgruntled female black bear, who was as surprised to see me as I was to see her. She looked me up and down carefully. Then, with a great "whoof," set off toward Sam and the students. I stopped and retrieved my phone from my pack. Through some miracle, I had cell service. "Sam," I said when we connected. "Incoming bear."

Sam and the students never did see that bear; we later figured that she had turned up the mountain and headed toward an old apple orchard that some previous landowner had planted in a saddle along the top ridgeline. The point here is one that I don't need to emphasize too hard for readers of *Fair Chase* who spend any amount of time in the field: transmission corridors or powerline rights-of-way are regularly frequented by many different species of wildlife, and these landscape features can provide excellent wildlife habitat for a broad range of species. How many of us have encountered deer, elk, bear, turkey, and other wildlife species while walking along an open transmission corridor somewhere in the great outdoors? How many of us regularly use these informal highways in the woods to access a favorite hunting spot or a preferred place for solitude and contemplation?

The fact that wildlife species regularly use transmission corridors as habitat is not lost on wildlife biologists and managers. Since the 1980s, scientists at the USGS Patuxent Wildlife Research Center and the U. S. Fish and Wildlife Service Patuxent Research Refuge have conducted extensive studies on wildlife species to understand how and why wildlife species use the areas within and along transmission corridors. The Patuxent Research Refuge is between Baltimore, Maryland, and Washington, D.C. Several major electrical transmission lines transect it, each with an accompanying right-of-way, with some averaging 150 feet in width. Vegetation within these rights-of-way is actively managed by the refuge and the power companies to prevent interference with the lines and to provide access for maintenance and repairs.

I have been privileged to work with many of the scientists at Patuxent who are performing world-class work to understand how transmission corridors benefit wildlife species. In addition to Sam Droege, I must also mention the significant contributions of Chandler "Chan" Robbins, one of the greatest North American ornithologists of all time, and Holliday "Holly" Obrecht, who directed many of the most innovative research projects on the subject of wildlife and corridor management at the Patuxent Research Refuge.

The concept of "vegetation succession" is a key part of understanding the importance of transmission corridors for wildlife. Unlike some other scientific theories, the concept of "vegetation succession" is pretty straightforward and even fairly intuitive for those who spend time outside observing the natural world. Essentially, "vegetation succession" means that other species will replace the plant species in a given area over time. We can observe such changes in vegetation happening throughout our lifetimes. For instance, we can see that an area of bare ground is rapidly colonized by grasses and forbs, which are replaced by shrubs and other low woody vegetation over a series of years and then eventually by trees that grow into a mature forest. In many parts of the United States, the vegetation at a site will trend inexorably toward a mature forest unless some event resets the succession timeline to an



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earlier state. The challenge for wildlife managers is that different wildlife species have differing habitat requirements, corresponding to different stages in vegetation succession. For instance, if we want to maintain habitat for birds that nest in grasslands, we must somehow prevent grassland areas from changing to shrublands and forest. We can do this through various habitat manipulations, including mechanical or chemical treatments and prescribed fire. Transmission corridor managers use these same treatments to set back vegetation succession along rights-of-way, leading to the creation and maintenance of areas of what wildlife biologists call "early successional" wildlife habitat.

Wildlife researchers studying transmission corridors have determined that for many animal species, the corridors do facilitate movement from one habitat area to another. This is the case for ungulates such as whitetail and mule deer, which have seasonal or periodic movements between various habitat areas. Migratory songbirds regularly use features in transmission corridors as stop-over, resting, or foraging sites during their annual migration. The transmission corridors can serve as an important habitat feature for some species. For example, black bears rely on fruits and berries found seasonally in the low shrubby vegetation within the corridor.

Corridors can also support populations of species that might have otherwise vanished from an area due to changes in vegetation, climate, or human activity. Early on, the team of scientists at the Patuxent Wildlife Research Center and the Patuxent Research Refuge realized that many species of grassland birds survived in the northeastern states largely at grassland sites located within powerline rights-of-way. The grasslands these bird species need to nest and raise their young have largely been replaced by vegetation succession and/or human activities across significant portions of the United States. Pockets of grassland vegetation along rights-of-way have enabled these species to survive in landscapes increasingly dominated by shrubs, trees, and human developments.

Still, other species of animals spend their entire lives within a single transmission corridor. Patuxent scientists documented the occurrence of certain turtles, snakes, and amphibians at corridor sites in the Mid-Atlantic, species that generally do not venture very far afield over their lifespan. Transmission corridors also support rare species. In the Northeast, two imperiled butterflies, the frosted elfin and the Karner blue butterfly, survive almost entirely at sites within powerline rights-of-way. And researchers at Patuxent have documented that many of our 4,000 native bee species rely exclusively on the early successional habitats found along transmission corridors and rights-of-way.

Given the importance of these corridors for many different wildlife species, wildlife scientists have turned their attention toward understanding how these corridors can be maintained over the long term to benefit wildlife of conservation interest. Much research has been dedicated to the development and testing of wildlife-friendly forms of corridor management, which involves such actions as mechanical treatments, prescribed fire, and the judicious use of chemicals as needed to set back vegetation succession and ensure the continued use of these corridors for energy transmission as well as wildlife management.

The results of these studies are encouraging and suggest that properly managed transmission corridors and utility rights-of-way have an important role in ensuring that many species of wildlife continue to thrive. ■

**For those readers interested in learning more about these studies and recommendations for transmission corridor and powerline right-of-way management, I suggest the following resources:**

National Conservation Training Center, Managing Rights-of-Way as Habitat Self Study Course

Rights-of-Way as Habitat Working Group

Rights-of-Way for Wildlife

Managing Young Forest Wildlife Habitats in Rights-of-Way Landscapes

Managing Rights-of-Way for Pollinators: A Practical Guide for Managers