

# Power lines offer environmental benefits

September 17 2014, by Sheila Foran

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David Wagner, professor of ecology and evolutionary biology, stands on a transmission right of way in Thompson, Conn., showing springtime foliage. Credit: David Wagner

Power lines, long considered eyesores or worse, a potential threat to human health, actually serve a vital role in maintaining the health of a significant population, according to new research out of the University of Connecticut.

The corridors that crisscross New England's rolling landscape are home

to native plant and animal life that require the type of habitat maintained beneath the power lines, according to David Wagner, professor of ecology and evolutionary biology.

Particularly in regions of the Northeast with high human population density, the power lines are vital to the conservation of hundreds of [species](#), as documented in two recent studies by Wagner. One was published this month in the journal *Forest Ecology and Management*, and another is forthcoming in the *Annals of the Entomological Society of America*.

"All manner of vertebrate and invertebrate life as well as a wide range of wild flowers and other native plants flourish there," says Wagner.

If the semi-open landscape – areas of grass and weeds, shrubs, and young forest growth – in the transmission corridors was not managed as it is now by power companies, the land would eventually turn into dense forest with heavy cover and limited sunlight, unsuitable for many of those species, Wagner says.

In one study, Wagner and co-authors examined bee species along a transmission line in Southeastern Connecticut over a two-year period. They identified roughly 50 percent of the state's bee species there, including one previously thought to be extinct in the United States, the *Epeoloides pilosula*, which had not been found in this country since 1960.



Long-horned bee (*Melissodes* sp.) female. Credit: Kim Phillips

The landscape is also the ideal habitat for species such as the New England Cottontail rabbit, says Wagner. While the population of its more adaptive cousin, the Eastern Cottontail, has not been impacted by development in the Northeast, the New England Cottontail occupies less than a fifth of the area it once called home.

Birds such as the American woodcock and indigo bunting, reptiles including the wood and box turtles, and many insect species, are also



dependent on the open, sunny habitats that are typical of the transmission line corridors.

Wagner's related investigation measured plant diversity and cover along an 89-mile transmission line corridor.

Researchers found that the richness of plant life along [transmission lines](#) was significantly higher than in the adjacent wooded areas. They documented 326 plant species in power line plots, more than twice the number found in woodland plots.

In particular, eight common heath species important to several finicky [bee species](#) – those with narrow preferences in pollen sources – were significantly more abundant in power line plots than in the nearby woods.



Collecting insect specimens along a power line corridor. Credit: David Wagner

Other plants more abundant along the power lines included such commonly known flower species as goldenrod, asters, daisies, and sunflowers, as well as a variety of herbs and shrubs that provide much of the late-season pollen and nectar for bees, beetles, moths, and butterflies.

Northeast Utilities, the company that owns and manages approximately 43,000 acres throughout Connecticut, Massachusetts, and New Hampshire, created a land trust in 2012 to promote the preservation of open spaces in New England.



Metallic green bee. Credit: Kim Phillips

NU's manager of transmission vegetation management, Anthony Johnson '80 (CAHNR), says the company works cooperatively with organizations such as the Audubon Society and the New England Wildflower Association, as well as providing support for academic research such as Wagner's.

"When I first started this job, I was always looking up – at the trees and the wires – making sure there was nothing to interfere with the [power lines](#)," Johnson says. "Now, I also find myself looking down – watching for turtles and snakes and wildflowers and seeing how abundant they are."



Metallic green bee (*Augochlora pura*) female. Credit: Kim Phillips

**More information:** David L. Wagner, Kenneth J. Metzler, Stacey A. Leicht-Young, Glenn Motzkin, "Vegetation composition along a New England transmission line corridor and its implications for other trophic levels," *Forest Ecology and Management*, Volume 327, 1 September 2014, Pages 231-239, ISSN 0378-1127, [dx.doi.org/10.1016/j.foreco.2014.04.026](https://doi.org/10.1016/j.foreco.2014.04.026).

Provided by University of Connecticut

Citation: Power lines offer environmental benefits (2014, September 17) retrieved 2 May 2024 from <https://phys.org/news/2014-09-power-lines-environmental-benefits.html>

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