

Environmental Consulting & Technology, Inc.

UTILITY CORRIDORS ARE INHERENTLY DIVERSE FROM A LANDSCAPE ECOSYSTEM PERSPECTIVE, REPRESENTING A DIVERSE CROSS-SECTION THROUGH THE LANDSCAPE AND PROVIDING SUITABLE HABITAT FOR MYRIAD PLANT AND ANIMAL SPECIES

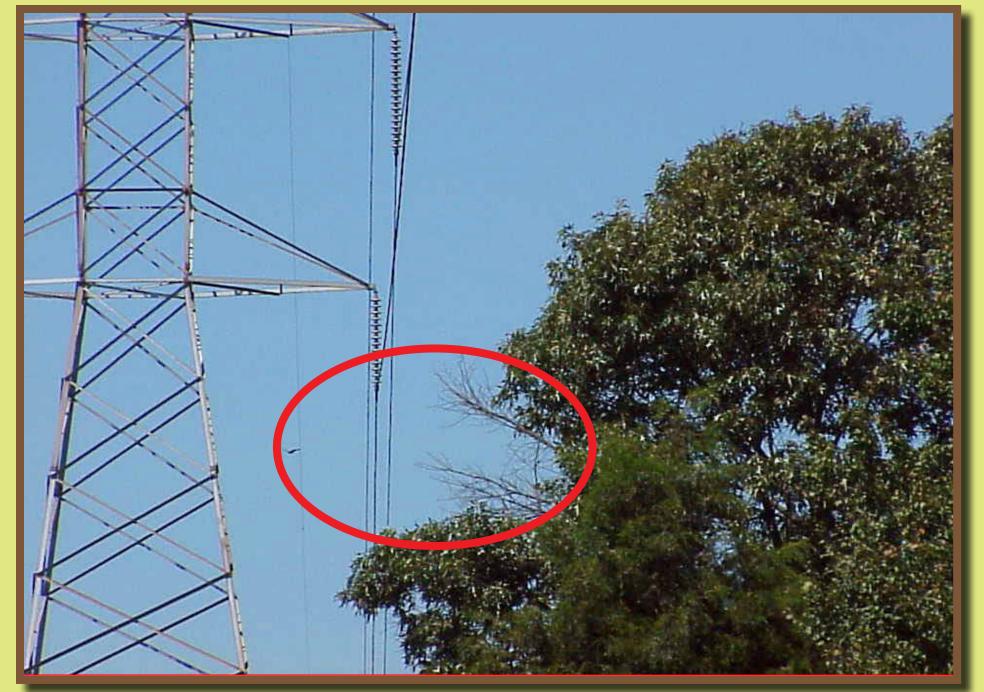
PROJECT BACKGROUND

ITC Holdings Corp (ITC), through its 4 operating subsidiaries, operates approximately 15,000 miles of electric transmission lines in seven states across the Midwest and Great Plains. ITC uses an integrated vegetation management approach to protect threatened and endangered species and maintain their corridors as healthy ecosystems. ITC worked with state agencies to develop a geographic information systems (GIS) database of rare plant and animal species and unique natural ecosystems that occur within or near ITC transmission corridors and launched an employee training program to aid in the implementation of this approach.



The blackout in August 2003, affected significant areas in the Northeast United States and Canada.

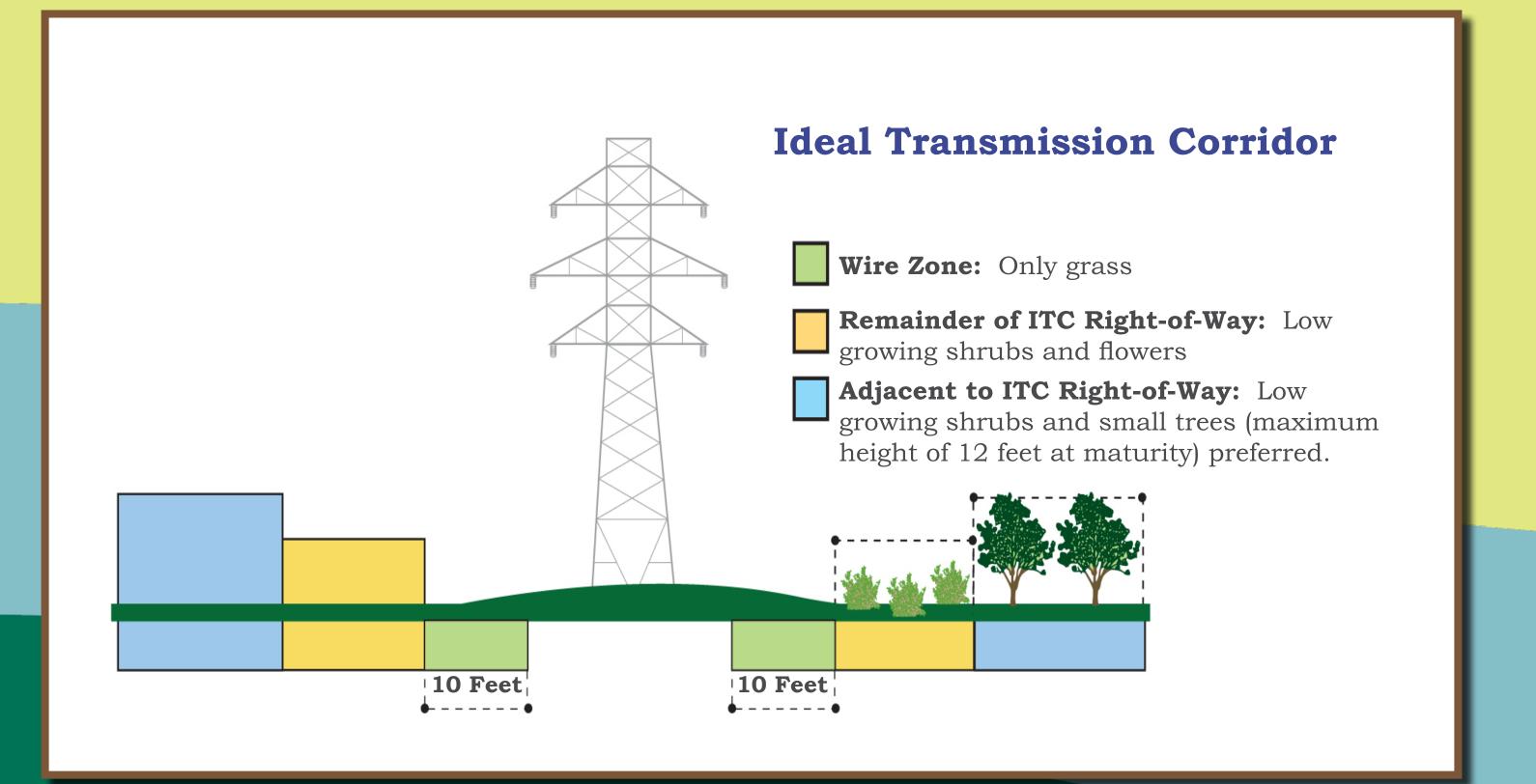
This event was initially triggered by vegetation interference and resulted in strict federal regulations regarding the management of vegetation in transmission corridors. Electric reliability can be compromised by branches coming into direct contact with the wires and by arcing, where material near but not touching the wires triggers a shortage. Vegetation management in ITC corridors is done to prevent this type of situation and blackouts like the one experienced in 2003.



Arcing can occur even when no direct contact is made

An ideal cross-section of a transmission corridor shows grasses occurring in the wire zone, low growing shrubs and herbaceous vegetation beyond that, and low shrubs and small trees along the edges of the easement.

This is the scenario that foresters and planners aim for as they manage vegetation along ITC's electrical super highway—it speaks to the structure of the vegetation in the corridor but not necessarily species composition or function.



RARE SPECIES PROTECTION STRATEGIES FOR CORRIDOR RESTORATION

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COMMON MISCONCEPTIONS

There are many misconceptions about transmission corridors, especially related to composition and function.
Utility corridors and other rights-of-way are often stereotyped as sterile environments devoid of biodiversity and usually infested with invasive species.

In the case of overhead transmission lines, they are believed to serve a single, anthropocentric purpose: to provide the safe and efficient delivery of electricity from place to place. Many believe this can only be accomplished by heavy-handed vegetation management in a way that is incompatible with restoring and maintaining wildlife habitat for rare species.



CHANGING PERSPECTIVES

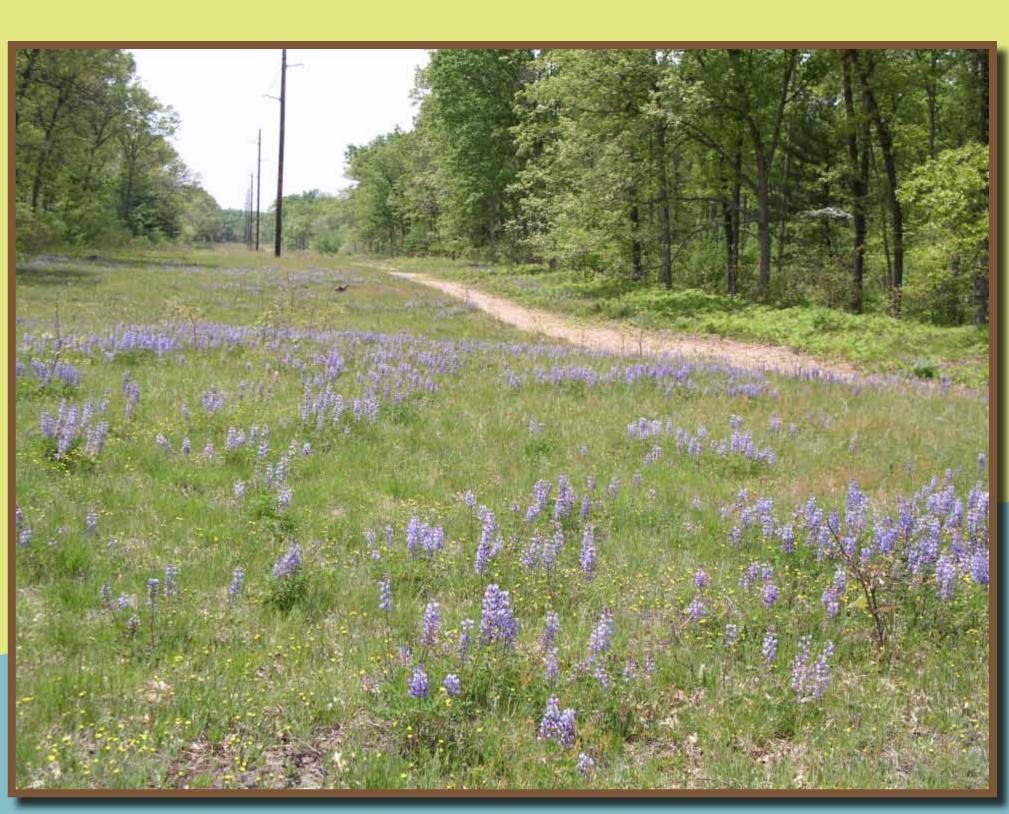
ECOSYSTEM DIVERSITY

Rights-of-way can be biologically and ecologically diverse. Because they span thousands of miles, utility corridors are inherently diverse from an ecosystem perspective—they cross uplands and wetlands, river floodplains and streams, through varying physiographic systems with different macro- and micro-climates, soil types, vegetation, and wildlife.



Emergent marsh

Invasive species



Oak barrens

CHANGING PERSPECTIVES

REFUGIA AND RARE SPECIES

Rights-of-way provide suitable habitat for many species, including threatened and endangered species. These corridors especially serve as refugia for rare and conservative species associated with fire-adapted ecosystems, such as prairie and oak savanna, where the selective removal of woody plant species to provide safe electrical line clearances and maintenance access mimics historic fire disturbance in an otherwise fire-suppressed modern landscape.
Utility corridors are inherently diverse from a landscape ecosystem perspective, representing a diverse cross-section through the landscape and providing suitable habitat for myriad plant and animal species

As a result of woody vegetation management, power line corridors provide suitable habitat for many rare and more common species of fire-dependent ecosystems, such as the federally endangered Karner Blue Butterfly, Michigan state threatened Prairie Smoke, Michigan state special concern Eastern Box Turtle, and conservative Goats Rue.



Karner Blue Butterfly

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Prairie Smoke





Eastern Box Turtle

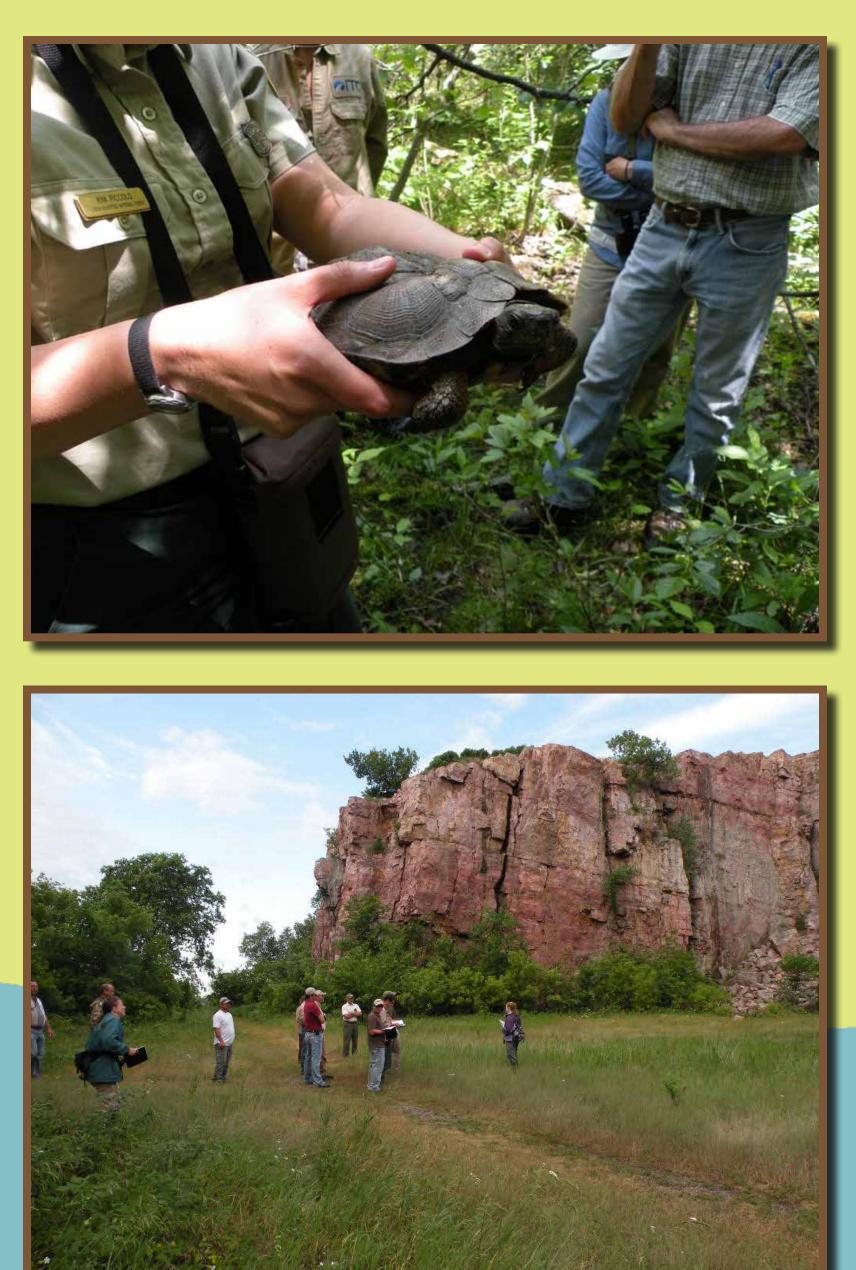
Goats Rue

PROTECTION STRATEGIES

ITC's integrated vegetation management approach involves managing the corridors as healthy ecosystems: targeting invasive species for removal, promoting the establishment of native herbaceous and short-statured woody plants that are naturally compatible with required line clearances, and modifying vegetation management techniques to minimize impacts to rare species.

Vegetation managers are encouraged to consider the following to minimize disturbance to rare species at all life stages and their habitat:

- When you work Timing is everything, when you work can dictate whether or not direct impacts will occur to a species that migrates or hibernates; time actions when site conditions are conducive to minimizing impacts.
- Where you work Know your space, where you work determines whether or not rare species habitat will be impacted; avoid sensitive habitat with unstable soils; avoid host/food plants.
- **How you work** Choose the best methods, how you conduct your work can make the difference between positive and negative effects; consider BMPs available like silt fence and erosion control blankets; boring as an alternative to plowing/trenching to avoid surface impacts; targeted herbicide application via cut-stump or backpack spray.



GIS DATABASE

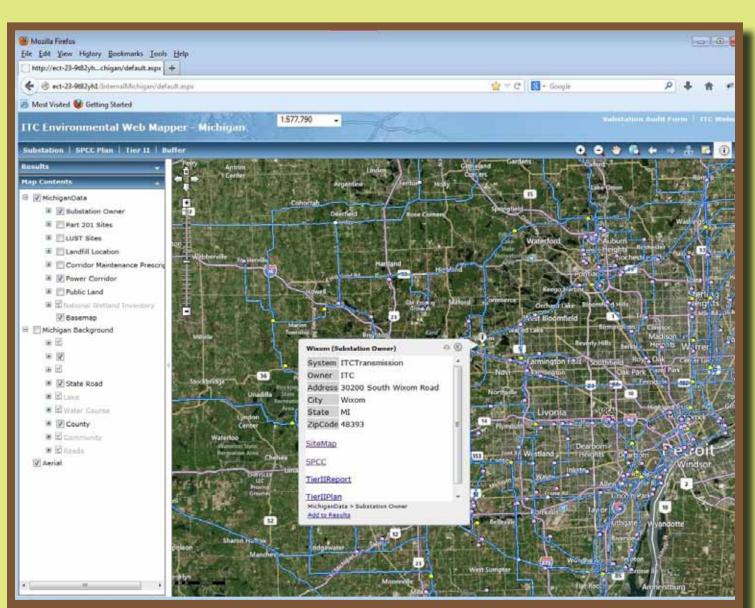
To manage a complex system of corridors for wildlife habitat, it's important to understand where rare species and high quality ecosystems exist.

ITC operates approximately 15,000 miles of electric transmission line in Michigan and the Midwest, so working with the agencies responsible for tracking natural heritage data is essential to creating an overall database of known element occurrences for their corridors. Coordination has involved federal and state wildlife agencies, including the



USFWS, MNFI, and Iowa, Minnesota, and Illinois Departments of Natural Resources to secure element occurrence data throughout ITC's Michigan and Midwest transmission footprints.

Based on this shared data, the natural history traits of each species and characteristics of unique ecosystems, and input from ITC staff regarding vegetation management standards for the transmission corridors, ECT developed a GIS-based mapping system to highlight locations where rare species and ecosystems are known to occur and communicate where and how vegetation management activities can be modified to minimize adverse impacts.



The database highlights the geographic locations where specialized vegetation management techniques, called "prescriptions," are needed to protect rare species and ecosystems. The "prescriptions" were incorporated into ITC's vegetation management software to help staff plan their management, maintenance, and restoration activities. Specialized techniques typically include limiting equipment access to times when animals are hibernating or plants are dormant and the use of specialized equipment or manual labor to limit impacts in sensitive habitats.

FIELD-BASED ENVIRONMENTAL TRAINING

ITC also launched an environmental training program to teach vegetation management staff to identify rare species and habitats. The training program utilized the GIS database to locate "hotspots" where numerous rare species and high quality habitats occur in close proximity, providing ideal settings for training sessions. The program used a regional landscape ecosystem approach to understanding corridor restoration and how vegetation management actions affect rare species and their habitats. The training sessions provided unique opportunities to practice rare species and habitat identification skills, review applicable rare species regulatory topics, discuss management actions and their implications for rare species, and empower ITC staff to locate previously unrecorded rare species data to enhance the database.

