

Strategic Conservation Plan

TPE Mission Statement

We seek to ensure the perpetuation and recovery of prairie, oak savanna, and other associated ecosystems of the Upper Midwest through protection, management, restoration, and education. In doing so, we strive to work openly and cooperatively with private landowners and other private and public conservation groups. (Adopted on Sept. 13, 2001).

Land Conservation (Land protection & management activities)

1. Overview.

Goal. The conservation goal of The Prairie Enthusiasts (TPE) is to protect and recover endangered fire-dependent native ecosystems of the Upper Midwest and the rare and declining species they support. These ecosystems include prairie, fen, sedge meadow, oak savanna, oak & pine barrens, and oak woodlands, but also ancillary ecosystems, such as streams, deep and shallow water marsh, cliff communities, etc., that are embedded within the greater fire-derived ecosystems and are often integral to the larger systems' function and biological diversity.

Geographic scope. To be effective, TPE is limited to working on fire-dependent communities within Wisconsin, Illinois, Minnesota, and Iowa and only in the areas of those states where TPE chapters exist. (See map of current chapters).

Conservation need. Less than 200 years ago, the Upper Midwest had tens of millions of acres of prairie and oak savanna. Today, only a small fraction of one percent of that original acreage remains in a condition approximating its original state. Most of these surviving acres (remnants of the original) are from the wet and dry ends of the soil moisture spectrum. Examples of well-drained deep soil (mesic) prairie and savanna are now exceedingly rare and small.

There are many species dependent upon these remnants or closely linked to the habitat structure they provide that are currently rare or in steep decline. These species are well represented on official lists of State and Federal endangered, threatened, and special concern species, or lists of Species of Greatest Conservation Need as defined by State Wildlife Action Plans. Of all plant species found in prairies and savannas, 15 percent or more are rare. Most grassland birds, approximately 50 percent of prairie and savanna-associated reptiles and amphibians, and an unknown number of insects and other invertebrates dependent upon or closely linked to these fire-dependent ecosystems of the Upper Midwest are rare or in major decline. Scientists estimate that there may be over 2,000 species of insects dependent upon native prairie and savanna vegetation in the Upper Midwest, and that for the most part they are restricted to remnant communities. An educated guess is that at least 25 percent of these invertebrates (possibly 500 species) may deserve official listing as Endangered, Threatened, or Species of Greatest Conservation Need, however the data are not yet available to fully assess them all.

The remaining acres of prairie and savanna are very limited, and at most only fifty percent are permanently protected. The rest are steadily succumbing to invasion by trees, shrubs, and non-native plants, or to direct destruction by development projects. Even if all of the remnants were protected and managed, in the long-term they will lose species if they are not enlarged and expanded with buffer lands. There is also pressing need for large restorations to ensure long-term survival of populations of many specialist prairie and savanna species that require large blocks of habitat. To fully conserve these ecosystems in the future, strategically placed large-scale restorations will be needed, in addition to protection and recovery of the remnants.

These high-sunlight ecosystems are often well-adapted to climates with warm temperatures and variable precipitation. This may cause them to be better suited to the climate change projections for the upper Midwest over the next hundred years than the climax forest types currently present in the region. Therefore, management for or towards these ecosystems may become the most viable conservation option over much of the region in the future.

2. TPE Approach/Strategy.

To effectively ensure the long-term survival of these rare and declining fire-dependent ecosystems and the rare and declining species they support, TPE recognizes the need for a two-pronged approach to land conservation and management that simultaneously protects and manages the last remnants of the original systems, and fosters/assists large-scale (landscape) conservation projects.

Remnants. Protecting and managing the last of the remnants, even small ones if of high enough quality, is critical to conserving our natural heritage of fire-dependent ecosystems in the Upper Midwest. This is especially true for the most reduced types of prairie and oak savanna, the deep soil (mesic) sites. There has been nearly 100 percent conversion of these communities to agriculture or succession to trees and brush.

Remnants are the primary genetic reservoirs for hundreds species and serve as blue-prints of community composition. The resources and information they hold are critical to rebuilding these ecosystems on scales large enough to be viable for long-term survival (200 or more years).

Saving the largest remnants, which often have the highest probability of retaining species over time, is a high priority. However, protecting and managing only the largest of remnants alone will not be adequate. Much information and genetic material is held within the small sites that the largest one do not have. Further, there are no large remnants left of some community types, especially those characteristic of the more productive soils. Small remnants, as a group, harbor many species not present on the largest sites, especially conservative insects. Small remnants hold much of the generic diversity within given species across a region. They also represent examples of community structure (blue-prints) not always captured within the largest sites. Losing

the resources found exclusively in small remnants would greatly hamper our ability to bring back these ecosystems through the large-scale restorations.

Therefore it is TPE's goal to:

- Protect/manage all high quality remnants of our target ecosystems (see Goal). The higher the quality/intactness, the higher the priority.
- Protect/manage/recover large degraded remnants of our target ecosystems (see Goal). The minimum area of degraded remnant sod required for being considered for a free standing, isolated project is ten acres.
- Buffer and expand remnants by restoring the land around them. For high quality sites, the maximum preserved/managed area goal should be five times the size of the remnant sod area, and a minimum of five acres.
- Give preference to sites with Federal or State listed endangered or threatened species that are dependent upon, or highly associated with, our target ecosystems (see Goal).
- All else being equal, give preference to sites with Federal candidate species, State special concern species, or Species of Greatest Conservation Need that are dependent upon, or highly associated with, our target ecosystems (see Goal).
- All else being equal, give preference to sites with gradients of soil moisture, topography, and slope aspect.

Large-scale (Landscape) Projects. Large-scale conservation projects (500 acres or more) are needed to ensure conservation of the full biological diversity of the fire-dependent ecosystems in the Upper Midwest. Such projects will require significant restoration or reconstruction of ecosystems.

Most prairie and savanna plants and many rare remnant-restricted insects have survived on small isolated patches of habitat for over 150 years. It is unrealistic to expect them to continue doing so for another 150 years without loss of species and genetic diversity. Eventually, they will need larger populations (more space), genetic exchange, and environmental gradients along which they may move to survive future environmental changes and challenges.

In addition, many vertebrate species and some insect species are dependent upon or associated with our target ecosystems (see Goal) that require habitat patches (or clusters of smaller habitat patches) far larger than any surviving high quality remnants provide. Some examples are most grassland birds, prairie voles, Franklin's ground squirrels, blue racers, bull snakes, and regal fritillary butterflies. For these species, the need for large-scale habitat is immediate and pressing.

To be effective and successful, large-scale projects should be located where 1) clusters of remnant sod are present and rare and declining species still exist, 2) surrounding or background land use is compatible with the habitat and management needs of the protected/managed lands, 3) highly productive prime cropland is limited, and 4) development pressure is not excessive. Because it can be extremely challenging to restore conservative insects, soil organisms, and some conservative plants, it will be more

effective and economical to create large landscape projects by expanding and connecting, via restoration, remnants that are in close proximity to each other. Contiguous large blocks of protected land are generally best for landscape projects, but clusters of smaller parcels in close proximity may also be effective, at least for species with moderate dispersal ability, or, in the case of plants, exchange of genes through pollinator movement between habitat patches.

Therefore, it is TPE's goal to

- Support and participate in strategically located landscape-scale recovery/restoration projects of our target ecosystems (see Goal) that have a minimum acreage of 500 acres.
- Give preference to projects that are surrounded by or imbedded within a matrix of compatible land uses; all else being equal, have limited highly productive prime cropland; and have at most low to moderate development pressure.
- Require projects to include remnant sod of our target ecosystems (see Goal), the more acres and the higher the quality the better.
- Give preference to sites with Federal or State listed endangered, threatened, or special concern species or Species of Greatest Conservation Needed that are dependent upon, or highly associated with, our target ecosystems (see Goal).
- All else being equal, give preference to sites with diverse substrates, soil types, and community/ecosystem types of our target ecosystems (see Goal). One exception is to avoid, or minimize, trees within projects that have a primary goal of treeless grassland habitat. Inclusion of trees in those projects could be an overall negative.
- All else being equal, give preference to sites with soil moisture, topographic, and slope aspect gradients.

3. Implementation Strategies.

It is TPE's objective to identify the highest priority sites for protection or management, and then initiate contact with the owners to inform them of the significance of what they have and learn what interest they have in management or protection of the site. We will also consider projects brought to TPE's attention by landowners seeking management or protection of their land.

Inventory of remnants. It is TPE's goal to develop a comprehensive database, incorporated within a geographic information system (GIS), of all known remnants, and rank them into broad categories based on quality and protection status. Information about ownership, location, conservation status, size, community types, threats, management needs, and any available species lists will be included. This database will be compiled in cooperation and consultation with state conservation agencies and other conservation groups.

This database will provide a basis for setting priorities as to which sites to actively pursue for management or protection; ranking projects that landowners or other conservation groups bring to TPE for consideration; assisting State and Federal agencies in identifying and assessing the status of rare and declining species; and identifying and selecting landscape-scale projects.

Identify priority landscape areas. It is TPE's goal to work, in either initiating or supporting roles, with public and private conservation groups to identify and rank areas with the best opportunities for landscape-scale projects that focus on the conservation of our target ecosystems (see Goal); and to act as a partner in developing and implementing the highest priority projects identified. Should cooperative projects not move forward, TPE will still give preference to the conservation and management of high quality remnants located within identified landscape-scale opportunity areas over remnants of equal value that are not located within landscape opportunity areas. TPE may also move forward independently in opportunities areas to protect, manage, and possibly connect clusters of remnants, even if no partnership develops to move forward on the larger cooperative effort.

Introducing species and genetic material. When restoring communities, in general the propagules (seeds, seedlings, roots, etc.) used should come from the site's remnant populations, except when (1) on-site populations are too small to meet the need, (2) on-site populations are likely suffering from inbreeding depression, or (3) salvaging propagules from at-risk native populations that are likely to be lost to development, agriculture, or woody plant invasion in the near future.

In general, introducing species to or near remnants, particularly high quality sites, should be avoided unless there is a compelling conservation need to do so. One exception is when there is strong evidence that a species was likely present in the past 100-200 years and has since been lost from a site due to grazing, cultivation, or other causes. Another exception is when planting prairie into mesic buffer cropland around a dry prairie remnant. There will be many plants typical of mesic prairie that are not present on the adjacent remnant, but were native to the area. To develop the mesic prairie community, those missing species must be re-introduced to the site from elsewhere.

Gene salvage/rescue and source. In situations where it is necessary or appropriate to introduce seeds or plants to a site, that material should come from a variety of native populations (five minimum) located within twenty miles of the receiving site. However, should the species be so rare on the landscape so as to have no populations within twenty miles, the nearest populations that can be found may be used. In locating/using donor populations, highest priority should be given to unsecure populations or individuals with a high likelihood of becoming lost. For species where large amounts of seed are going to be needed over time, and the native wild sources are insufficient to meeting the need, TPE will consider establishing seed orchards, using multiple genetic sources, to mass produce the needed seed.

Gene exchange to counter inbreeding depression. For plant species no longer producing viable seed on a site and for which there is evidence or strong likelihood that this is the result of loss of genetic diversity (inbreeding depression), active movement of pollen, seed, or seedlings among isolated populations should be carried out. (Woolly milkweed (*Asclepias lanuginosa*) is an example.) However, for listed endangered or threatened species, movement of genetic material among sites should only be done under the guidance of State or Federal recovery plans. In these cases, TPE will work with

appropriate state and federal agencies. Some animal species with poor dispersal may also suffer from genetic loss in small isolated populations and may benefit from exchange of individuals among sites. Advice and guidance from specialists and regulatory agencies should be sought before doing such work as well.

Climate change and species/genes introduction. Should climate change occur as predicted, need may arise to move some species, or at least genetic material, from further south or west in cases where previous natural corridors of dispersal have been eliminated and survival of the species are in question. Such introductions (assisted migrations) should not be taken lightly, and should only be done under the advice and guidance of specialists and regulatory agencies.