

## **Managing Savanna in your Back Yard**

Landowners with an interest in wildlife and the environment are discovering that they often have opportunities to encourage wildlife at their back door. Provide the right habitat, and you can attract a host of animals. Any environmental setting from forest to wetland can usually be enhanced to attract more wildlife. However, often the owner's vision for the future of the back yard includes a mix of grasses, sedges, and wildflowers growing unchecked in a glade highlighted with a few scattered, mature trees – a savanna.

### *Savanna Dynamics*

The open, park-like nature of savannas make them very attractive to people. However, most do not know that this ecosystem is among the rarest in existence; globally imperiled. Persisting as it does in patches often surrounded by forest, savanna usually converts to forest as well unless some form of disturbance sets back that conversion. Back yard savanna patches add to the amount of savanna in local areas, provide additional sites where savanna-adapted plants and animals can reproduce, and slows the conversion of these sites to forest.

Where savanna occurs naturally, it is a transition type between prairie and forest. Without some form of disturbance, savanna naturally progresses over time to forest. This successive change involves not only the growth of woody plants but also the progressive enrichment of the soil with humus that better stores both water and nutrients. The shade from these woody plants moderates the environmental extremes at the ground level where new woody plants will take root. Once started, this transition to forest occurs at a quickening pace. On more fertile soils, this process can result in established woody plant seedlings in as little as 3-5 years.

### *Why Savannas Persist*

Savanna persists in a wild setting because extreme environmental conditions slow the succession to forest, and periodic natural disturbances come frequently enough to set back this succession and maintain an open landscape. The soils on which these savannas develop are often sandy, low in nutrients, and well drained. The heat of summer impacting on these dry sites, coupled with the occasional killing frost during the growing season, combine to provide environmental extremes that challenge all plants, but especially woody plants. Dry site conditions make savannas fire-prone, and stressed plants are vulnerable to insect and disease attack. These periodic disturbances set back plant growth where extreme environmental conditions have failed to check woody growth.

### *Savanna Wildlife*

When extreme conditions make survival difficult for all plant species, one result is a high diversity of plant species that often struggle to survive sharing the limited soil nutrients and water available. It is this diversity that attracts a variety of animals to savannas. These extreme conditions also slow the growth of plants so they are not at their fullest extent each year until mid-summer, well after growth in other grasslands has peaked. In addition to attracting grazing animals like deer and rabbits, this mid-summer growth

attracts a host of insects which, in turn, attract animals who feed on insects—turkey poults, bluebirds, swallows, and bats.

Savannas are particularly attractive to butterflies. The diversity of plants, especially the mix of grasses, sedges, and flowering plants at ground level, provides habitats for a diversity of butterflies. Because savanna is such a rare ecosystem, many of the butterflies found there are also rare. Among the rarest of savanna butterflies is the federally endangered Karner blue butterfly that feeds exclusively as a caterpillar on the leaves of the blue lupine. This butterfly's survival is tied to the continued existence of savanna.

### *Managing Savanna*

If a back yard savanna is a part of plans for your land, then 3 initial steps are in order. Find out what kind of soil you have. Sandy soils are best. Dig a hole to see how deep the darker, humus-laden top soil extends. Top soils restricted to the upper 2 to 4 inches are compatible with the extreme environmental conditions that result in high plant diversity. Check to see if you already have plants growing that typically occur in savannas. Such savanna patches can often be restored or expanded, and these remnants serve as an excellent seed source adapted to local conditions. Finally, ask if neighboring properties are also being managed for savanna. The additional area involved when multiple landowners join forces greatly expands the benefits to all landowners and to wildlife, especially when these patches can be linked together with habitat corridors.

### *Restoring Savanna*

When restoring degraded savanna, remember that you are adding your efforts to a natural process to either reduce undesirable plants or to cause a general disturbance to a target site that desirable plants will recover from more easily than undesirable competitors. Undesirable plants may be pulled, cut, individually chemically treated (often after cutting), or fire scorched with a propane torch. These techniques are effort-intensive and require positive identification of undesirable plants. Alternatively, the entire target site or patch can be mowed, chemically treated, or burned. The application of chemicals requires a thorough understanding of chemical effects on plants, animals, and the local natural community and may need to be done by a certified applicator. The use of fire to meet a natural community objective (prescribed burning) is potentially dangerous and should only be done by qualified individuals operating from a prescribed burn plan for the site.

Many animals, especially insects, are killed when these treatments are applied. For that reason, it is best to treat only a third of the entire savanna area in any given year so entire animal populations are not eliminated. This spacing of treatments allows animals from adjacent untreated savanna to recolonize the treated site. The untreated savanna can be on neighboring properties provided the distance to them is not so great that recolonization of treated sites can be expected after 1 year. While treatments can be applied under the assumption that entire populations of more common animals are not put in jeopardy, endangered and threatened species must be afforded greater protection. Consult with appropriate agencies when these species are found.

### *Creating Savanna*

When no savanna species are found on a target site, it can be planted with species common to Michigan savannas provided the soils on site are suitable to support a savanna. Site treatment is recommended to eliminate plants that may compete with the plants being established. Sites can be chemically or physically treated, but top soils that have not recently been disturbed better support the establishment of savanna. Seeds of many plant species can be planted by machine. Some plants like little blue stem and lupine may need to be started in plugs and then transplanted to assure better survival. Many plants spread vegetatively, once established. These plantings often require 2 to 3 years to establish themselves. During that period, follow-up treatment like mowing and chemical treatments may be necessary to discourage competition from undesirable plants. However once established, savannas can be maintained indefinitely without the need for replanting. For information and assistance in planning and establishing your savanna, contact your local DNR Operations Service Center or visit us at [Michigan.gov/DNR](http://Michigan.gov/DNR) and [Karner Blue.org](http://KarnerBlue.org).

### *Summary*

Remember, savannas are transitional ecosystems that need to be regularly maintained through some form of disturbance like mowing, cutting, chemical treatment, or burning. Savannas contain a number of rare species so treat only 1/3 of the patch in any given year to avoid harming entire species populations. Coordinate your management activities with your neighbors when possible to produce a larger effect. Think about habitat corridors to link patches together in your local area. Enjoy the wildlife that is attracted to your back door—you had a hand in making it happen!