



Photo by Gene Barickman, USDA, Natural Resources Conservation Service

### **Introduction:**

Savannas are characterized by widely spaced, open grown trees with a prairie-like understory. Although this community may have been more common in the northern two-thirds of the state, savanna or open woodland was present throughout much of Illinois. This job sheet will provide the information necessary to reconstruct a savanna by establishing the plant species appropriate for your site and the management necessary for the savannas' health. This type of savanna reconstruction is necessary where the site has few if any native savanna species, the site has been managed for other landuses like cropland or pasture of introduced species, and the goal is to re-establish the savanna plant community the site once had.

### **Site Preparation:**

Remove all woody species that are not characteristic of the savanna being reconstructed. Stump treat with a herbicide to prevent resprouting of the trees and shrubs removed. Eliminate invasive herbaceous species before planting or seeding savanna species.

### **Species selection and sources:**

Attached is a specification sheet with the trees, shrubs, grasses, and forbs (wildflowers) to be planted and the seeding and planting rates for each species. The species that have been selected are for the specific type of savanna that is being restored and for the soil, moisture and other characteristics of the site. Do not substitute species without making sure that it is an appropriate substitute. For the grassland portion of the restoration there are at least 3 grasses or sedges and at least 10 forbs to provide some of the diversity of the savanna type that is being restored. More species make

it an even more diversified community closer to that of a native Illinois savanna.

Seed should originate from within a 100-mile radius of the site where possible and be produced in the USA. Commercial sources specializing in locally collected and propagated seed are listed in the publication *Prairie Establishment and Landscaping* by William E. McClain, 1997. Technical Publication #2. Illinois Department of Natural Resources. An updated version of this list can be accessed at:

<http://dnr.state.il.us/conservation/naturalheritage/prairie/appen2.htm>.

Seeding rates for each species is given in "pure live seed" (PLS). The seed must be purchased at the PLS rate, or if sold as a bulk rate, the amount of seed purchased must be increased to provide the PLS rate given the percent germination and purity of the seed.

### **Seedbed preparation and seeding:**

Soil tests and supplemental fertility such as lime and fertilizer are not required for this practice. Seeding will be performed within the seeding dates listed on the attached specification sheet.

Prepare fields for seeding by eradicating all existing vegetation which may compete with savanna species. Controlling weeds and competing introduced species before seeding will greatly improve establishment and reduce maintenance needs. For fields coming out of cultivation, spray weeds that have germinated with an approved burndown herbicide then plant. For old fields, pastures and fallow areas several treatments for one or two growing seasons may be required, using a combination of herbicides, mowing, and burning, to eradicate aggressive undesirable vegetation. If cultivation is required allow time for weed seeds to germinate after cultivation then spray with a burndown herbicide before planting. A cover crop of oats can be seeded on fields prone to erosion, especially if the site will require more than one year to prepare.

Dormant seeding during late fall or early winter when soil and air temperatures will remain cold enough to prevent germination is the recommended establishment method. A broadcast seeding may be done after the recommended dormant seeding date. The seed will be worked into the ground by the actions of freezing and thawing overwinter. A drill

may be used for planting but be careful not to plant too deep, no more than twice the seed diameter. Native seed will usually benefit by cold wet stratification as it overwinters.

Spring seeding may be done by using grain drills and cultipacker-type seeders if the seed delivery mechanism is designed to handle the type of seed being planted. No-till seeding may be done using a seed drill designed for no-till seedings. No-till grain drills are acceptable if the seed delivery mechanism is designed to handle the type of seed being used. Place seed at a depth not to exceed two times the seed diameter.

**Tree stock and planting:**

Tree planting stock will be at least 3 feet tall with at least ½-inch caliper. The large initial size is required to facilitate their protection from fire, and reduce competition from grass. It is recommended that container grown air root pruned stock be used because these seedlings have thick fibrous roots as opposed to a large taproot, which may be difficult to plant. Seedlings will be planted by hand or using an auger at least 12 inches in diameter. Soil will be firmly packed around seedling roots. Weed barrier fabric squares (4 feet by 4 feet or larger) can be used to control competing vegetation. Plant trees after October 1 until the ground freezes. Planting may continue in early spring as soon as the ground can be worked until April 25th.

Plant trees in the locations indicated on the sketch below or attached planning map. Generally, for a savanna planting trees are planted in clumps or patches rather than evenly spaced across the field. Within the clumps, trees should be spaced 30 to 60 feet apart. There should be open space for prairie between the clumps of trees. Historically, trees on savannas had the closest spacing on the east and/or north slopes, in

valleys and along streams or just up the slope from open wetlands.

Replanting will be required if the survival of planted trees after the first growing season is less than 70%.

**Management recommendations:**

The first growing season mow when necessary to control weeds. Keep mowing height above seedlings (at least 6 inches above the ground). After the first year, the prairie part of the savanna is best managed by the use of prescribed fire. Savanna is a plant community that developed with and is maintained by fire. Prescribed burning may be conducted every year for the first few years if there is enough fuel to carry a fire. Burning will stimulate the prairie plants and control weeds and volunteer woody plants. After the planting is established, prescribed burning should be conducted every three to five years. For wildlife considerations, divide the area into smaller management units and burn only 20 to 30 percent of the area each year. Vegetation should be controlled within a two-foot radius of the trees to reduce competition. The planted trees must be protected from fire until they reach a size resistant to fire, usually four to six inches in diameter at breast height. To protect small trees during a prescribed burn rake the fuel away from the trees and/or carefully “burn out” an area around the trees. Prescribed burning shall take place during the dormant season (late fall to early spring). Burn only with an approved burn plan using the Conservation Practice Prescribed Burning Job Sheet 338js. Use spot mowing or spraying to control noxious weed problems. Woody vegetation not part of the savanna restoration should be controlled and not allowed to shade out the prairie plants or overtop the trees selected to become part of the savanna.

Sketch of the planting site (or attached map/aerial photograph)

