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# Establishing Early Successional Habitat for Wildlife

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## Introduction

Early successional habitat is characterized primarily by grasses and forbs, often with brambles and shrubs pioneering into the site. This type of structure and cover is essential for a variety of wildlife species in Ohio. In recent years, there has been a decline in early successional wildlife habitat across Ohio. Some of this decline is attributed to residential and commercial development and natural succession to forest, but other areas have been converted to row crop production and non-native hay or pasture. A decline in early successional habitat negatively affects wildlife dependent upon this type of structure and cover. Common wildlife species that use early successional habitat include eastern cottontail, wild turkey, northern bobwhite, white-tailed deer, bobolink, eastern meadowlark, dickcissel, Henslow's sparrow, sedge wren, and northern harrier. One of the essential components of early successional habitat for many wildlife species is native warm-season grasses.

Early successional habitat can be established by allowing the seedbank to respond after disturbance (usually herbicide application, fire, disking, or a combination) or by planting. Establishing native warm-season grasses and forbs requires attention to detail, especially when planting. Early successional habitat often appears weedy or brushy to those who are unfamiliar, but this is a natural part of the process as the grasses and forbs begin to establish. This unkempt

appearance is providing a great amount of structure for the wildlife that use it for food and shelter.

## Characteristics

As opposed to non-native cool-season grasses that grow well in spring and fall, warm-season grasses grow primarily during the warmest months of the year, typically June, July, and August in Ohio. They are bunch grasses that grow in clumps and are especially beneficial to ground-feeding birds because they allow mobility between the clumps. Once established, they also provide excellent cover for larger animals, such as white-tailed deer.

## Species of Warm-Season Grasses

In Ohio, switchgrass, indiagrass, sideoats grama, little bluestem, big bluestem, broomsedge bluestem, and eastern gamagrass are species having high winter survival and adaptability in all areas of the state. Along with forbs these grasses are best seeded as a mixture, providing a diverse structure. There is interest by some wildlife managers to plant caucasian bluestem, but it is not recommended for planting in Ohio. Research studies across the Midwest have shown caucasian bluestem to be an aggressive invasive plant that can overtake more desirable warm-season grasses. Additionally, Ohio State University Extension research is limited on its adaptation across the state.

**Table 1. Selected warm-season grasses suitable for Ohio**

Common Name	Scientific Name	Height	Comments
Switchgrass	<i>Panicum virgatum</i>	3 to 7 feet	Tolerates poorly drained and low fertility soils, occasional flooding, and perched water tables. Grows best in moist, well-drained sites.
Big Bluestem	<i>Andropogon gerardii</i>	5 to 9 feet	Higher drought tolerance than other grasses. Tolerates low fertility in acid, sandy, loamy, and clay soils. Poor shade tolerance.
Broomsedge Bluestem	<i>Andropogon virginicus</i>	4 feet	Does not require fertilizers and can grow in low fertility soils.
Indiangrass	<i>Sorghastrum nutans</i>	3 to 6 feet	Growth begins later than other grasses. Can be planted on moderately well-drained soils and can withstand occasional flooding. Seed is light and difficult to seed without a special grassland drill.
Eastern Gamagrass	<i>Tripsacum dactyloides</i>	6 to 9 feet	One of the earliest to begin spring growth. Grows well in deep soils with good water-holding capacity.
Little Bluestem	<i>Schizachyrium scoparium</i>	2 to 5 feet	Drought resistant and moderately shade tolerant. Grows well in a variety of soils.
Side-oats Grama	<i>Bouteloua curtipendula</i>	2 to 4 feet	Drought tolerant. Grows well in a variety of soils.

## Establishment

Unlike cool-season grasses, warm-season grasses require a great deal of patience as they may be slow to establish. The typical length of time for establishment is two years and as many as four years for eastern gamagrass. Warm-season grasses, until established, do not compete well with weeds or cool-season grasses. Seeding bluestems and indiagrass may require drills with agitators and picker wheels because the seed have long awns, making them appear hairy. Drills equipped to seed cool-season grasses can be used with switchgrass and eastern gamagrass. Obtaining technical assistance from your local Soil and Water Conservation District, Natural Resources Conservation Service, Ohio State University Extension, or a wildlife organization, such as Pheasants Forever or Quail Forever is a good idea when planting native warm-season grasses and forbs.

Fields selected for planting must be free of weeds and other grasses prior to planting. The use of herbicides may be necessary in the establishment phase and also in the preemergence period to control weeds in the seedbank after seeding. Contact your local Ohio State University Extension office for herbicide recommendations or refer to the *Weed Control Guide for Ohio and Indiana* available from your local Extension office. A field previously

planted to corn or soybeans can be ideal if there is minimal surface residue. A former pasture can be planted to warm-season grasses if the existing sod is killed with herbicides. It is vital to plant into a firm, weed-free seedbed as direct seed-to-soil contact is critical. Broadcasting warm-season grass seeds on a finely cultivated seedbed is another planting option. After sowing, it is important to cultipack the seedbed to provide good seed-soil contact. Broadcast rates should also be increased by about one-third the rate used when drilling seed.

Buying high-quality seed is important when planting warm-season grasses. Seed purity may range from 50 to 70 percent because of inert material (stems, leaves, other debris) and the germination rate may only be 50 to 60 percent. Because of this, it is critical to plant the recommended amount of pure live seed (PLS). Pure live seed is determined by multiplying the % germination x % pure seed/100. This information can be found on the seed tag.

A typical warm-season grass mixture based on pure live seed per acre for wildlife planting might include:

- 1.5 lbs. big bluestem
- 1.0 lb. indiagrass
- 1.0 lb. little bluestem
- 0.5 lb. switchgrass
- 1.0 lb. legumes or forbs

**Table 2. Suggested seeding rates for native warm-season grasses**

Species	Seeding Rate (PLS/acre)*
Big Bluestem	2.0–2.5
Broomsedge Bluestem	2.0–2.5
Indiangrass	2.0–2.5
Switchgrass	0.5
Eastern Gamagrass	1.0
Little Bluestem	1.0–1.5
Side-oats Grama	2.5–3.0

\* The total seeding rate should not exceed 3–5 lbs/acre

### Fertilizing

After selecting the area to plant, take a soil sample to determine present nutrient levels and the need for additional lime and fertilizer. This should be done several months prior to seeding. While most warm-season grasses will grow well in poor soils, it is recommended that soil pH be at least 5.5 for optimum establishment and growth. If your soil test indicates a need for lime, apply it before the soil is tilled so it can be incorporated into the top several inches of soil. Phosphorus (P) and potassium (K) can be applied at planting based on soil test recommendations. Nitrogen (N) should not be applied at planting because it tends to promote weeds.

### When to Plant

Spring planting should be conducted when soil temperatures reach 55–60 degrees F. This is usually from mid-April to mid-May. Native warm-season grasses can be planted successfully into June; however, later plantings are more risky as dry weather can lead to reduced germination and lower seedling survival.

### Summary

It is important to remember native warm-season grasses are different from the cool-season grasses most people are used to working with, and they require a different level of management. It is critical that the intended site be free of weeds, have adequate soil fertility, and the seed planted at the appropriate time and at the correct rate. With a little patience, landowners can improve wildlife habitat for a variety of animals.

### Resources

Harper, C.A., G.E. Bates, M.P. Hansbrough, M.J. Gudlin, J.P. Gruchy, and P.D. Keyser. 2007. Native warm-season grasses: Identification, establishment, and management for wildlife and forage production in the Mid-South. UT Extension, PB 1752. Knoxville, TN. 189 pages. ISBN 978-0-9795165-0-4 United States Department of Agriculture, Natural Resources Conservation Service, Conservation Cover Establishment Guide, Technical Note –Agronomy–OH-5.

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