EARL Y SEASON NA TIVE FORBS	ORBS		May		June			July			August			September		
SCIENTIFIC NAME	COMMON NAM E	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30
Caltha palustri s	Marsh marigol d															
Geum triflorum	Prairie smoke															
Antennaria neglect a	Pussytoes															
Castilleja coccinea	Indian paintbrush															
Krigia biflora	False dandelio n															
Saxifraga pensylvanica	Swamp saxifrage															
Senecio aur eus	Golden ragwor t															
Sisyrinchium campest re	Blue-eyed grass															
Hypoxis hirsut a	Yellow star grass															
Pedicularis canadensi s	Lousewor t															
Viola pedatifida	Prairie viole t															
Car damine bulbosa	Spring cr ess															
Allium canadense	Wild garlic															
Lithospermum canescens	Hoary puccoon															
Phlox maculat a	Marsh phlox															
Phlox pilosa	Prairie phlox															
Anemone canadensi s	Canada anemone															
Prunella vulgaris var . lanceolat a	Self heal															
Zigadenus elegans	White camass															
Dodecatheon medi a	Shooting star															
Campanula aparinoides	Marsh beliflower															
Oxalis violacea	Violet wood sor rel															
Comandra umbellata	Bastar d toadflax															
TOT AL EARL Y SEASON FORB SPE	ECIES POTENTIALL	Y RIP	E	23		10	12	99		11	34		61	2		

State Street	1 the																			
NATIVE GRASSES			June			July		F	lugus	t	Sep	September		October		r	November			
SCIENTIFIC NAME	COMMON NAME	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30	and the second
Hier ochloe odorata	Sweet grass																			10000
Heter ostipa spartea	Por cupine grass																			A PROPERTY OF
Sphenopholis obtusata	Prairie wedgegrass																			and the second second
Calamagr ostis canadensis	Blue joint grass																			1
Koeleria macrantha	June Grass																			-
Glyceria striata	Fowl manna grass																			1.00
Agr opyr on trachycaulum	Slender wheat grass																			1000
Bouteloua curtipendula	Sideoats grama																			2.00
Elymus canadensis	Canada wildrye																			Section States
Schizachyrium scoparium	Little bluestem																			10000
Spartina pectinata	Prairie cor d grass																			and the second
Panicum vir gatum	Switchgrass																			
Sor ghastrum nutans	Indiangrass																			
Spor obolus heter olepis	Prairie dr opseed																			-
Andr opogon gerar dii	Big bluestem grass																			100
Spor obolus compositus	Tall dr opseed																			State of the local division of the local div
Muhlenber gia racemosa	Upland wild timothy																			100
Elymus vir ginicus	Virginia wildrye																			Sec. 2
Cinna arundinacea	Woodland r eedgrass																			Sec. Sec.
TOT AL GRASS SPECIES POTENTIA	LL Y RIPE		1	2	5	3	3				1	8	9	11	8	5	1			1

NATIVE LEGUMES		July		A	August			temb	er	October			November			
SCIENTIFIC NAME	COMMON NAME	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30
Lathyrus venosus	Veiny pea															
Lathyrus palustris	Marsh vetchling															
Astragalus canadensis	Canada milkvetch															
Desmodium illinoense	Illinois tick trefoil															
Desmodium canadense	Showy tick tr efoil															
Dalea purpur eum	Purple prairie clover															
Lespedeza capitata	Roundhead bushclover															
Dalea candida	White prairie clover															
Baptisia bracteata var . leucophaea	Cr eam wild indigo															
Baptisia alba var . macr ophylla	White wild indigo															
TOT AL LEGUME SPECIES POTENT	ALL Y RIPE			1	1		2	5	6	8	7	6	3	1		

	States Trans		$\mathbf{v}$	1		10		100	25	200
NATIVE SEDGES			May			June			July	_
SCIENTIFIC NAME	COMMON NAME	1-10	10-20	20-30	1-10	10-20	20-30	1-10	10-20	20-30
Car ex annectans	Yellow foxsedge									
Car ex interior	Prairie star sedge									
Car ex stricta	Tussock sedge									
Car ex meadii	Mead's sedge									
Car ex bicknelli	Prairie sedge									
Car ex br evior	Plains oval sedge									
Car ex gravida	Heavy sedge									
Car ex molesta	Troublesome sedge									
Car ex vulpinoidea	Br own fox sedge									
Car ex pellita	Woolly sedge									
Car ex bebbii	Bebb's sedge									
TOT AL SEDGE SPECIES POTENTIAL					3	8	8	7	2	

To request copies, or for more information, call the Tallgrass Prairie Center at 319.273.3836. Tallgrass Prairie Center, University of Northern Iowa Cedar Falls, IA 50614-0294 tallgrassprairiecenter.org — 2018

**Optimal Collection Period** 

Seed Ripening Period

LA TE SEASON NA TIVE FORBS	COMMON NAME		ugus 10-20	1-10	0temb	20-30	ctobe 10-20	1-10	vemb	
Stachys palustris	Woundwort			 			 	 		
Vicia americana	Vetch									
Rudbeckia hirta	Black-eyed Susan									
Lobelia spicata										
	Spiked lobelia									
Iris shr evei	Blue flag									
Rosa car olina	Pastur e rose									
Oxypolis rigidior	Cowbane									
Ver nonia fasciculata	Ironweed									
Veronicastrum vir ginicum	Culver's root									
Heliopsis helianthoides	False sunflower									
Lysimachia quadriflora	Narr ow-leaved loosestrife									
Lythrum alatum	Winged loosestrife									
Ceanothus americana	New Jersey tea									
Eupatorium maculatum	Spotted Joe Pye									
Thalictrum dasycarpum	Purple meadow rue									
Pycnanthemum pilosum	Hairy mtn. mint									
Lobelia car dinalis	Car dinal flower									
Lilium philadelphicum	Wood lily									
Zizia aur ea	Golden alexanders									
Silphium laciniatum	Compass plant									
Eryngium yuccifolium	Rattlesnake master									
Allium cer nuum	Prairie onion									
Asclepias tuber osa	Butterfly milkweed									
Lobelia siphilitica	Great blue lobelia									
Silphium integrifolium	Rosinweed									
Pycnanthemum tenuifolium	Slender mtn. mint									
Lysimachia ciliata	Fringed loosestrife									
•	Swamp milkweed									
Asclepias incar nata										
Echinacea pallida	Pale purple coneflower									
Amorpha canescens	Lead plant									
Rudbeckia subtomentosa	Sweet coneflower									
Pycnanthemum vir ginianum	Common mtn. mint									
Cor eopsis palmata	Prairie cor eopsis									
Anemone cylindrica	Thimbleweed									
Ratibida pinnata	Gray-headed coneflower									
Pedicularis lanceolata	Swamp lousewort									
Eupatorium perfoliatum	Common boneset									
Potentilla ar guta	Prairie cinquefoil									
Oligoneur on rigidum	Rigid goldenr od									
Lilium michiganense	Michigan lily									
Liatris pycnostachya	Prairie blazingstar									
Symphyotrichum sericeum	Silky aster									
Symphyotrichum oolentagniense	Skyblue aster									
Symphyotrichum laeve	Smooth blue aster									
Monar <b>da fistulosa</b>	Wild ber gamot									
Verbena stricta	Hoary vervain									
Symphyotrichum novae-angliae	New England aster									
Pr enanthes racemosa	Rattlesnake r oot									
Oligoneur on riddellii	Riddell's goldenr od									
Artemisia ludoviciana	Prairie sage									
Symphyotrichum praealtum	Willowleaf aster									
Parthenium integrifolium	Wild quinine									
Liatris aspera	Rough blazingstar									
Anemone vir giniana	Virginia anemone									
Cor eopsis tripteris	Tall cor eopsis									
Solidago missouriensis	Missouri goldenr od									
Solidago nemoralis	Gray goldenr od									
Solidago speciosa	Showy goldenr od									
Euthamia graminifolia	Grass-leaved goldenr od	1								
Eutramia grammiona		_								

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**University of Northern Iowa** 

# SEED COLLECTING FROM **TALLGRASS PRAIRIES**

Content by Greg Houseal PRAIRIE RESTORATION SERIES

Seed of many native species are now commercially available for prairie reconstructions, large or small. Yet many people have an interest in collecting and growing native species for butterfly gardens, backyard and schoolyard wildlife habitat, and prairie restorations. Seed collecting is satisfying and rewarding, a great volunteer activity for introducing people to prairies, and a good way to collect seed for local prairie restorations.

# Which species?

Any species can be collected by hand, but hand collecting is particularly useful in collecting seed of native species which:

» occur on specific sites that may be inaccessible to machine harvest

» are very low- or high-growing species or early- or late-ripening species

» occur as uncommon or patchy species in native prairie

» have explosive seed dispersal mechanisms (phlox, violets)

# **Equipment Needed**

Leather work gloves

**Good quality** pruning shears or heavy-duty scissors

Large plastic unbreakable

combs Durable, lightweight tubs of various sizes

**Cloth or paper** bags of various sizes

**Backpack for** 

carrying extra bags Appropriate clothing - sturdy footwear. long pants, hat, extra water

**Binoculars for** scouting





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## How to Collect?

Seed can be stripped by hand from many species (blazingstars, asters, grasses). Efficiency can be improved by keeping both hands free by fastening collection bags and containers around the waist. In species with seed in 'salt-shaker' pods, try tipping the pod into an open container to collect (shooting star, giant St. John's wort, larkspur, wild columbine). This will minimize the need to clean seed later. If seed is held tightly in the seed head, simply clip a portion of the seed head for later cleaning. Prickly seed heads like rattlesnake master (Eryngium yuccifolium) or pale purple coneflower (Echinacea *pallida*) will require gloves and shears for efficient collecting. Plastic combs aid efficient stripping of seed from grasses as illustrated in the photo below. Species with explosive pods can be bagged with nylon hosiery just prior to seed dispersal.

Leather gloves and good-quality scissors or shears are a must for effective seed collecting. Unbreakable plastic combs are inexpensive and efficient tools for stripping grass seed. Choose brightly colored tools that will be easy to spot if dropped or misplaced in the prairie while collecting. Use breathable bags (cloth or paper) for collecting that will allow moisture to escape. Even seemingly dry seed/seed heads retain enough moisture when first collected to cause mildew or rot if left unchecked in plastic bags. Use care not to leave collected material in closed vehicles that may heat up in the sun.



Seed head of pale purple coneflower (*Echinacea pallida*) sliced in half to reveal lighter-colored seeds tucked in between bracts.

### Where to Collect?

Many areas have been planted to native species (reconstructed prairies). Planted prairies provide important wildlife, soil and water quality benefits. They have far fewer species than remnant prairies, and often the original source of seed for the planting has not been recorded or is unknown. If seed source is important for your project, collect from planted prairies only if you know the original source of the seed and it meets your restoration goals.

Obtain permission from the landowner or proper land management agency prior to collecting. Be mindful that removal of any plant or plant part from preserves, natural areas, and parks is restricted, so check with the proper agency before collecting in these areas. Harvesting from roadsides may be restricted in some states and counties. Many counties in Iowa, for example, are planting native prairie in roadside rights-of-way. Ask permission from the county roadside managers, engineers, or state department of transportation before collecting from roadsides.

Obtain permission from the landowner or proper land management agency prior to collecting.

## **Collecting from Remnant Prairies**

Remnants are small remaining patches of the original prairie landscape that have not been cropped, overgrazed, or otherwise destroyed. Very few remnant prairies exist in the Midwest today, and most are in need of careful management if they are to be conserved. A commonly expressed rule is "take half, leave half" when harvesting seed from remnants. Be mindful of legal and ethical considerations when collecting. While remnants are important local genetic sources of seed stock for restorations or seed nurseries, they should not be directly exploited for commercial production of seed. Federal and state endangered and threatened species cannot be collected without proper permits (go to Iowa DNR's webpage to download a list of Iowa's threatened and endangered species: www.iowadnr.gov/Conservation/ Iowas-Wildlife/Threatened-and-Endangered).

#### Keep in mind two important ideas:

» Attempt to collect roughly equal amounts of seed from several individuals in the population.

» Generally speaking, near neighbors are more closely related genetically than distant individuals, so it is important to collect seed from throughout the population.

Removal of any plant or plant part from preserves, natural areas and parks is restricted; check with the proper agency before collecting in these areas.



Remnant prairies provide genetically adapted seed for restoring prairies for future generations of lowans!

# Are There Negative Impacts to Collecting from Remnants?

Most prairie species are perennial, meaning their roots survive over winter to regrow shoots the next spring, so an annual seed crop is not essential to the perpetuation of the population. Exceptions are annual, biennial, and short-lived perennial species: rare and uncommon species; or common species poorly represented in a remnant. Avoid intense, repeated, annual harvesting of the same remnant area. The negative impacts of over-collecting include trampling of vegetation and introduction of exotic or invasive plants brought in on clothing or equipment. Manipulation of a remnant prairie to maximize seed production - such as whole-site, repeated annual burns: herbicide treatments: or fertilizing - is inappropriate and damaging to remnant biodiversity. Finally, any mechanical harvesting occurring in remnant sites should include a careful inspection and cleaning of equipment prior to use, including vehicles, to avoid introducing exotic/invasive species that may contaminate the equipment and lead to the degradation of the remnant or create long-term management issues.

Federal and state endangered species cannot be collected without proper permits, and should only be done as part of a recovery effort by qualified professionals.

# **Collecting Seed for Genetic Diversity**

An important restoration goal should be to capture genetic diversity from remnant populations. Here are some rules of thumb to guide your efforts. First, of course, be reasonably sure the site is a remnant (never plowed, not planted).

Collect seed from at least 20 to 30 well-dispersed individual plants within a population, if possible. Randomize the process; avoid intentionally selecting plants based on size, color, vigor, or any other trait. The point is to capture genetic diversity, not novelty. To sample large populations, walk transects and collect seed perhaps every 10 paces. Collect roughly equal amounts of material (seed or seed head) from each plant you encounter. If collecting from multiple sites, attempt to equalize the contribution of seed from each site, particularly if collecting seed as foundation stock for nursery production to generate seed for other reconstructions.

# When to Collect?

Seed ripening and timing of harvest varies by species, environmental conditions, and regional adaptation of plants. Most species ripen gradually, so not all seed will be at the same stage of maturity at any given time. Seed maturity usually progresses from top to bottom of the seed head in grasses and many forb species. However some ripen from the bottom up, as in the blazingstars. Mature seeds are usually quickly dispersed either by gravity, wind, water, or animals, so it's important not to delay collecting.

The tables illustrate approximate seed maturity times for selected tallgrass prairie species in Iowa. Cold, moist conditions will delay seed maturity, while hot, dry conditions hasten it. Latitude affects ripening since many plants flower and set seed in response to photoperiod. Seed maturity occurs earlier in populations adapted to northern Iowa, and later in populations adapted to southern Iowa. Optimal collection periods when more species are likely to be in fruit are indicated.

Harvest grasses at the hard-dough stage, when firm thumbnail pressure slightly dents the caryopsis. Many grasses do not hold seed long after maturity. Test ripeness by firmly striking the seed head against your palm; if some shattering occurs, the seed is ready to harvest.

In forb species, the seed head or stalk immediately below will appear dry or discolored as seed matures. A notable exception is the spiderworts (*Tradescantia*), members of the day-flower family, which drop mature seed while bracts remain green and other flowers in the same cluster are in bud or blooming. Species with a dispersal apparatus, i.e. 'parachutes' (blazingstars, asters, goldenrods, milkweeds) will appear dry and fluffy at maturity and should be picked immediately at this stage. Some species forcefully eject seed at maturity (phlox and violets, for example), and must be checked daily or bagged loosely with a mesh bag so seed is captured upon dispersal.

## **Keeping Records**

Keeping records of where and when you collect provides important information about a prairie restoration. Basic information to include is location (county, township, section and quarter section), soil type (sandy, clayey, loamy), and moisture (wet, medium, dry), slope and aspect (direction slope faces), approximate size of population, number of plants collected, and date. It's a good idea to include a sketch of the site to jog your memory about where the species occurred within the prairie.

Data Collected :												
Collector(s):												
Address:												
Contact Information:												
Species Collected :												
County:	Township:	Range:	Section:	Quarter Section:								
Property Owner/Land Management Organ	Sketch of	Exan										
Soil Type:	]		Colle									
Slope :												
Aspect (direction slope faces) :												
Approximate Size of Population:	]		100.00									
No. of Individual Plants Collected From:												
Associated Species:					100							

Example of Seed Collecting Label