

**Animal Enhancement Activity- ANM21-Prairie Restoration for Grazing and Wildlife Habitat**

Grazing and wildlife habitat can be complementary uses for land in a prairie restoration. Wise selection of plant materials and a prescribed grazing plan that protects key areas during the critical nesting seasons are the keys to a successful restoration.

**Plant Selection**

Select plant materials for the livestock intended to graze the prairie restoration as well as the intended wildlife. Tables 1 and 2 offer recommendations for cool and warm season grasses. Switchgrass should not be used if intended livestock are horses or sheep.

Table 3 lists recommended legumes and forbes to benefit wildlife as part of the prairie restoration. Legumes for forage include Ladino Clover, Red Clover, Alfalfa, Kura Clover and Birdsfoot Trefoil. Some of the forbs listed in Table 3 may be grazed as forage when in a young vegetative stage. The intensity of grazing use by livestock is not known.

Appropriate fungal and microbial inoculants must be used. Bacterial inoculants are especially important when seeding legumes.

**TABLE 1: Recommended Native Cultivars and Ecotypes for Prairie Restoration**

| Warm Season Species    | Cultivar or Ecotype | Geographic Zone |
|------------------------|---------------------|-----------------|
| <b>Switchgrass</b>     | Forestburg          | Statewide       |
|                        | Shelter             | Statewide       |
|                        | Trailblazer         | Statewide       |
|                        | Southlow            | Southern MI     |
| <b>Indiangrass</b>     | Tomahawk            | Statewide       |
|                        | Rumsey              | Statewide       |
|                        | Southlow            | Southern MI     |
| <b>Little Bluestem</b> | Blaze               | Southern MI     |
|                        | Aldous              | Statewide       |
|                        | Southlow            | Southern MI     |
| <b>Big Bluestem</b>    | Roundtree           | Southern MI     |
|                        | Bonilla             | Statewide       |
|                        | Bonanza             | Statewide       |
|                        | Bison               | Statewide       |
|                        | Niagra              | Statewide       |
|                        | Southlow            | Southern MI     |

**Table 2. Recommended Seeding Mixtures for Prairie Restoration**

| Species             | Livestock Use | % of Mix | Seeds per Square Ft. (lb/ac) | pH Minimum | Wet Soils <u>1/</u> | Drought Tolerance <u>2/</u> | Flood Tolerance |
|---------------------|---------------|----------|------------------------------|------------|---------------------|-----------------------------|-----------------|
| <b>Big Bluestem</b> | Yes           | 10-50    | 3.8                          | >5.5       | Yes                 | Moderate                    | Good            |
| <b>Indiangrass</b>  | Yes           | 10-50    | 4.0                          | >5.5       | No                  | Moderate                    | Moderate        |
| <b>Little</b>       | Yes           | 10-      | 6.0                          | >5.5       | No                  | Good                        | Poor            |

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|--------------------------|---------------|----------|------------------------------|------------|---------------------|-----------------------------|-----------------|
| <b>Bluestem</b>          |               | 30       |                              |            |                     |                             |                 |
| <b>Prairie Sandreed</b>  | No            | 0-30     | 6.6                          | >5.5       | No                  | Excellent                   | Poor            |
| <b>Canada Wildrye</b>    | Yes           | 5-20     | 2.6                          | >5.5       | Yes                 | Moderate                    | Moderate        |
| <b>Switchgrass</b>       | Cattle only   | 0-5      | 9.0                          | >5.5       | Yes                 | Poor                        | Good            |
| <b>Canada Bluejoint</b>  | Yes           | 0-5      | 9.0                          | >5.5       | Yes                 | Poor                        | Excellent       |
| <b>Prairie Cordgrass</b> | No            | 0-5      | 3.8                          | >5.5       | Yes                 | Fair                        | Excellent       |

**Table 3. Forbs and Legumes for Prairie Restoration**

| Species  | Value to Wildlife <u>1/</u> | Seeding Rate PLS Oz/Acre | Seeds Per Square Ft. <u>2/</u> |
|--|-----------------------------|--------------------------|--------------------------------|
| <b>DRY</b>   |                             |                          |                                |
| <b>Dotted Blazingstar</b> ( <i>Liatris punctata</i> )      | EX                          | 1.0                      | 0.3                            |
| <b>Silky Aster</b> ( <i>Aster sericeus</i> )               | EX                          | 1.0                      | 0.6                            |
| <b>Purple Coneflower</b> ( <i>Echinacea angustifolia</i> ) | EX                          | 2.0                      | 0.25                           |
| <b>Showy Penstemon</b> ( <i>Penstemon grandifloris</i> )   | G                           | 1.0                      | 0.25                           |
| <b>Bush Clover</b> ( <i>Lespedeza capitata</i> )           | G                           | 1.0                      | 0.25                           |
| <b>DRY to MESIC</b>  |                             |                          |                                |
| <b>Leadplant</b> ( <i>Amorpha canescens</i> )              | EX                          | 1.0                      | 0.4                            |
| <b>Butterfly Weed</b> ( <i>Asclepias tuberosa</i> )        | EX                          | 2.0                      | 0.2                            |
| <b>Smooth Aster</b> ( <i>Aster laevis</i> )                | EX                          | 1.0                      | 1.0                            |
| <b>Heath Aster</b> ( <i>Aster ericoides</i> )              | EX                          | 1.0                      | 1.0                            |
| <b>Stiff Tickseed</b> ( <i>Coreopsis palmata</i> )         | EX                          | 1.0                      | 0.3                            |
| <b>Showy Goldenrod</b> ( <i>Solidago speciosa</i> )        | G                           | 1.0                      | 1.2                            |
| <b>Rough Blazingstar</b> ( <i>Liatris aspera</i> )         | EX                          | 1.0                      | 0.3                            |
| <b>Compass Plant</b> ( <i>Silphium laciniatum</i> )        | G                           | 2.0                      | 0.1                            |
| <b>Hoary Vervain</b> ( <i>Verbena stricta</i> )            | G                           | 1.0                      | 7.5                            |
| <b>Prairie Smoke</b> ( <i>Geum triflorum</i> )             | G                           | 1.0                      | 1.0                            |
| <b>MESIC to WET</b>  |                             |                          |                                |
| <b>Rattlesnake Master</b> ( <i>Eryngium yuccifolium</i> )  | EX                          | 2.0                      | 0.4                            |
| <b>Giant Sunflower</b> ( <i>Helianthus giganteus</i> )     | EX                          | 1.0                      | 0.3                            |
| <b>Common Ox-eye</b> ( <i>Heliopsis helianthoides</i> )    | EX                          | 2.0                      | 0.4                            |
| <b>Tall Blazingstar</b> ( <i>Liatris pycnostachya</i> )    | EX                          | 1.0                      | 0.3                            |

Table 3. Forbs and Legumes for Prairie Restoration

| Species                      |   | Value to Wildlife <u>1/</u> | Seeding Rate PLS Oz/Acre | Seeds Per Square Ft <u>2/</u> |
|------------------------------|---|-----------------------------|--------------------------|-------------------------------|
| <b>Yellow Coneflower</b>     | <i>(Ratibida pinnata)</i>               | EX                          | 1.5                      | 0.9                           |
| <b>Golden Alexanders</b>     | <i>(Zizia aurea)</i>                    | G                           | 1.0                      | 0.3                           |
| <b>Canada Tick Trefoil</b>   | <i>(Desmodium canadense)</i>            | G                           | 3.0                      | 0.3                           |
| <b>Wild Bergamot</b>         | <i>(Monarda fistulosa)</i>              | EX                          | 1.0                      | 1.25                          |
| <b>WET</b>                   |   |                             |                          |                               |
| <b>Swamp Milkweed</b>        | <i>(Asclepias incarnata)</i>            | EX                          | 2.0                      | 0.2                           |
| <b>Panicled Aster</b>        | <i>(Aster lanceolatus)</i>              | EX                          | 1.0                      | 0.75                          |
| <b>Boneset</b>               | <i>(Eupatorium perfoliatum)</i>         | EX                          | 1.0                      | N/A                           |
| <b>New England Aster</b>     | <i>(Aster novae-angliae)</i>            | G                           | 1.0                      | 1.3                           |
| <b>Joe-pye Weed</b>          | <i>(Eupatorium maculatum)</i>           | G                           | 1.0                      | 2.0                           |
| <b>Blue Vervain</b>          | <i>(Verbena hastata)</i>                | G                           | 1.0                      | 1.0                           |
| <b>DRY to WET</b>            |   |                             |                          |                               |
| <b>Yarrow</b>                | <i>(Achillea millefolium)</i>           | EX                          | 1.0                      | 1.0                           |
| <b>Maximillian Sunflower</b> | <i>(Helianthus maximiliani)</i>         | EX                          | 1.0                      | 1.0                           |
| <b>Black-eyed Susan</b>      | <i>(Rudbeckia hirta)</i>                | EX                          | 1.0                      | 2.5                           |
| <b>Stiff Goldenrod</b>       | <i>(Solidago rigida)</i>                | EX                          | 1.0                      | 1.0                           |
| <b>Purple Prairie Clover</b> | <i>(Dalea purpurea)</i>                 | EX                          | 1.0                      | 1.0                           |
| <b>FORAGE LEGUMES</b>        |   |                             |                          |                               |
| <b>Alfalfa</b>               | <i>(Medicago sativa)</i>                | EX                          | 3-6 lbs/acre             | 6                             |
| <b>Kura Clover</b>           | <i>(Trifolium ambiguum Bieb.)</i>       | G                           | 1.0 lbs/acre             | 6                             |
| <b>Ladino Clover</b>         | <i>(Trifolium repens var giganteum)</i> | EX                          | 1.5 lbs/acre             | 6                             |
| <b>Red Clover</b>            | <i>(Trifolium pretense L.)</i>          | EX                          | 1-3 lbs/acre             | 6                             |

EX- excellent G- good

### Grazing Management

The grazing schedule will include rest or deferral of use of key areas or paddocks during primary nesting and fawning dates from April 15 through August 1. A written grazing management plan will detail the schedule of use. Outside of the primary nesting season, grazing intensity will **never** exceed Moderate Use. Grazing records documenting date of record, dates of actual use, the livestock numbers and grazing heights in and out of the key areas or paddocks are required. Managers can use the Grazing Record Sheet that follows.

**Table 4.** Grazing Intensity Indicators defines light and moderate grazing use based on removal of forage. Numbers of livestock may need to change to accomplish moderate or lighter grazing in the restored acres. Light grazing will have fewer head on more acres to accomplish grazing of the tops of desirable plant materials only. Moderate grazing allows more use of the desirable forage plants and some use of the lesser quality forage plants. Grazing management will include monitoring forage plant height to determine when to move livestock.

**Table 4. Grazing Intensity Indicators**

| Grazing Intensity | Uniform Grazing                              | Stand Utilization | Forage Plants Used                                 | Seed Stalks Present                  | Trailing |
|-------------------|--|-------------------|--|--------------------------------------|----------|
| Light             | No, obvious areas not grazed throughout area | < 40%             | 30- 50% of Desirable Forages                       | 60-80% of plants have stalks         | None     |
| Moderate          | Yes on most of the key area                  | 40-50%            | 70% Desirable forages<br><10 % Undesirable forages | 15-25% Desirable forages have stalks | Little   |

When planning stocking rates for light and moderate grazing, use a utilization factor in the appropriate formula. Light grazing has a factor of 0.40 and moderate grazing uses a factor of 0.50.

$$1. \text{ Animal Number} = \frac{(\text{total forage production} * \text{acres} * \text{utilization factor})}{(\text{average animal weight} * \text{intake rate} * \text{days of grazing planned})}$$

$$2. \text{ Carrying capacity} = \frac{(\text{total forage production} * \text{utilization factor})}{(\text{average animal weight} * \text{intake rate} * \text{length of grazing season})}$$

3. Grazing period stocking density=

$$\frac{(\text{Available forage present} * \text{utilization factor})}{(\text{Average animal weight} * \text{intake rate} * \text{length of grazing rotation})}$$

Monitoring grazed forage heights as an indicator of grazing intensity will be needed at least weekly and more frequently as the end of the grazing period approaches. Key species to monitor are the native grasses and forbs. Big Bluestem is a key species in a warm season grass mix as it is grazed preferentially over the other grasses and can disappear over time.

Grazing heights of 8 inches will be maintained over the key area or paddock.



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| Management Unit | Acres |      |        | Date | Forage Height | Date | Forage Height |
|-----------------|-------|------|--------|------|---------------|------|---------------|
| Key Forage      |       | Type | Number | In   | Inches        | Out  | Inches        |
|                 |       |      |        |      |               |      |               |
|                 |       |      |        |      |               |      |               |
|                 |       |      |        |      |               |      |               |
|                 |       |      |        |      |               |      |               |
|                 |       |      |        |      |               |      |               |
|                 |       |      |        |      |               |      |               |
|                 |       |      |        |      |               |      |               |

*Remarks:*