

## Michigan Supplemental Enhancement Activity

### Plant Enhancement Activity – PLT02 – Grazing management to improve wildlife habitat

#### Required Criteria:

- **A grazing management plan** that will allow rest periods to occur in an effort to improve plant health and vigor, provide adequate residue cover to serve as nesting and fawning cover, and increase diversity of herbaceous vegetation structure to benefit a variety of wildlife species.

- **Photo point monitoring**

Photo point monitoring involves establishing permanent photo points and returning annually to take photographs at these locations. Photo point monitoring provides a visual record of changes in the pasture that benefits wildlife habitat.

For each photo point, at least one close-up and one landscape photo will be needed. Close-up photographs show specific characteristics of an area such as soil surface, ground cover, or litter. Landscape photographs document broad changes in conditions over time.

#### Procedure:

- Photographs should be taken at least annually at the same time each year.
- Establish the photo point and mark with a brightly painted steel or wooden post.
- On the data sheet provided, briefly describe the photo point location and why the site was selected.
- For landscape photographs, record a compass direction to help position the camera for future photographs. If possible, include a landmark in the background or place a second permanent marker about 20 feet away from the photo point marker to line up the photograph.
- For close-up photographs, lay a frame at the desired location (next to the marking stake or within a few feet of the stake, if the area is disturbed by livestock). Two carpenter rulers can be utilized to create a 3 ft. X 3 ft. square frame. Standing over the frame, take a photograph looking down at the frame. Try to avoid casting a shadow across the frame when taking the photo.
- Be sure to include a photo ID card that is large enough to be visible in the picture identifying the date, photo point number, and pasture name and/or number.

**Monitoring Techniques** (one or more of the following techniques will be used)

**1. Plant Productivity Determinations**

It is possible to calculate the amount of dry matter before and after a grazing period using a 1 sq. foot square frame or right angle and a scale or balance.

- Obtain a lunch sack or baggie to hold forage. Weigh the bag empty. Record the weight.
- Place square frame or other tool onto forage. Hand pick all forage in the 1 sq. foot area by clipping or nipping off at 3 inches above the soil surface. Place forage in bag.
- Weigh forage and bag. Record weight.
- Subtract empty weight from forage and bag weight. Multiply the new weight by a moisture correction factor of 0.35 (for 35% dry matter.)
- Multiply the corrected weight calculated above by 96 to convert grams per square foot to pounds per acre. OR multiply by 43560 to convert pounds per square foot to pounds per acre. OR multiply by 2723 to convert ounces per square foot to pounds per acre. Record calculated forage dry matter.
- Repeat annually to document maintaining or improving wildlife cover.

**2. Measuring Key Forage Plant Heights (before and after grazing)**

Identify and record the key plant species to be monitored. In grazed warm season grass mixed stands, the key species should be Big Bluestem. In cool season grass or mixed grass legume pastures, monitor the plant species that are wildlife friendly.

Before the grazing period begins, measure the key forage plant height at several locations in the pasture. Record the average height and date grazing begins.

Near the planned end of the grazing period monitor key forage plant heights. When grazed heights reach 4 inches above the soil surface, remove livestock from pasture. Measure key forage heights at several locations in the pasture. Record the average height and date grazing ends.

**3. Step point transect**

Step point transects are a rapid method for quantifying soil cover and the potential for erosion. Plant canopy is the percent of the ground surface covered by vegetation. Bare ground is defined as soil not covered by vegetation, litter or rocks. Soil cover is related to the site's ability to protect the ground surface from wind and water erosion. As percent bare ground increases, the potential for erosion increases.

For each step point transect, at the beginning point, select a point in the distance along the direction utilized in the photo point landscape photo. Every two paces, record the presence or absence of cover at the tip of one boot. If cover is present, record whether the cover is vegetation, rock, or litter. Otherwise, record as bare ground.

- Collection and recording of step point transect data (Example form provided. Other data collection forms providing similar information are acceptable.)

#### **4. Line point intercept**

Line point intercept is an accurate method for quantifying soil cover, including vegetation, litter, rocks and biotic crusts. These measures are related to wind and water erosion, water infiltration, changes in species composition and cover, and the ability of the site to resist and recover from degradation. The following vegetation attributes are monitored with this method:

- Canopy (foliar) and basal cover
- Bare ground
- Ground cover
- Litter cover
- Cover by species, plant type, or functional group

Collection and recording of line point intercept transect data are required. (Example form provided. Other data collection forms providing similar information are acceptable.)

#### **References:**

National Cattleman's Beef Association – IRM Natural Resource Desk Record  
<http://www.beefusa.org/prodredbooksandothertools.aspx>

Sampling Vegetation Attributes – Technical Reference 1734-4  
<http://www.blm.gov/nstc/library/pdf/samplveg.pdf>

Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems  
[http://usda-ars.nmsu.edu/Monit\\_Assess/monitoring\\_main.php](http://usda-ars.nmsu.edu/Monit_Assess/monitoring_main.php)

#### **References:**

Holloran, M.J., Heath, B.J., Lyon, A.G., Slater, S.J., Kuipers, J.L., and Naderson, S.H. 2005. Greater sage-grouse nesting habitat selection and success in Wyoming. *J. Wildlife Management* 69:638-649.

Riley, T.Z., Davis, C.A., Ortiz, M., and Wisdom, M.J. 1992. Vegetative characteristics of successful nests of lesser prairie chickens. *J. Wildlife Management* 56:383-387.

DeLong, A.K., Crawford, J.A., and DeLong Jr., D.C. 1995. Relationships between vegetational structure and predation of artificial sage grouse nests. *J. Wildlife Management* 59:88-92.

Giesen, K.M. 1994. Movements and nesting habitat of lesser prairie-chicken hens in Colorado. *Southwestern Naturalist* 39:96-98.

**Photo Point Monitoring ID Card**

**Pasture  
Name:**

\_\_\_\_\_

**Photo  
Point ID:**

\_\_\_\_\_

**Observer:**

\_\_\_\_\_

**Date:**

\_\_\_\_\_

**GRAZING RECORDS**  
**Key Forage Plant Heights**

<b>NAME:</b>				Total Pasture Acres:			
Farm or Tract:							
Management Unit		Livestock		Date In	Forage Height Inches	Date Out	Forage Height Inches
Key Forage	Acres	Type	Number				

# Step Point Transect

Date: \_\_\_\_\_ Observer: \_\_\_\_\_

Pasture: \_\_\_\_\_ Transect ID: \_\_\_\_\_

Step Number	Cover			Bare Ground	Step Number	Cover			Bare Ground
	Veg.	Rock	Litter			Veg.	Rock	Litter	
1					26				
2					27				
3					28				
4					29				
5					30				
6					31				
7					32				
8					33				
9					34				
10					35				
11					36				
12					37				
13					38				
14					39				
15					40				
16					41				
17					42				
18					43				
19					44				
20					45				
21					46				
22					47				
23					48				
24					49				
25					50				

% Vegetative cover = \_\_\_\_ vegetation points X 2 = \_\_\_\_%

% Rock cover = \_\_\_\_ rock points X 2 = \_\_\_\_%

% Litter cover = \_\_\_\_ litter points X 2 = \_\_\_\_%

% Bare ground cover = \_\_\_\_ bare ground points X 2 = \_\_\_\_%

# Line-point Intercept Data Form

Page \_\_\_\_\_ of \_\_\_\_\_

Shaded cells for calculations

Plot: \_\_\_\_\_ Line #: \_\_\_\_\_ Observer: \_\_\_\_\_ Recorder: \_\_\_\_\_

Direction: \_\_\_\_\_ Date: \_\_\_\_\_ Intercept (Point) Spacing Interval = \_\_\_\_\_ cm ( \_\_\_\_\_ in)

Pt.	Top canopy	Lower canopy layers			Soil surface	Pt.	Top canopy	Lower canopy layers			Soil surface
		Code 1	Code 2	Code 3				Code 1	Code 2	Code 3	
1						26					
2						27					
3						28					
4						29					
5						30					
6						31					
7						32					
8						33					
9						34					
10						35					
11						36					
12						37					
13						38					
14						39					
15						40					
16						41					
17						42					
18						43					
19						44					
20						45					
21						46					
22						47					
23						48					
24						49					
25						50					

% canopy (foliar) cover = \_\_\_\_\_ canopy pts (1st col) x 2 = \_\_\_\_\_ %  
 % bare ground\* = \_\_\_\_\_ pts (w/NONE over S) x 2 = \_\_\_\_\_ %  
 % basal cover = \_\_\_\_\_ plant base pts (last col) x 2 = \_\_\_\_\_ %

**Top canopy codes:** Species code, common name, or NONE (no canopy).

**Lower canopy layers codes:** Species code, common name, L (herbaceous litter), W (woody litter, >5 mm (~1/4 in) diameter).

**Unknown Species Codes:**  
 AF# = annual forb  
 PF# = perennial forb  
 AG# = annual graminoid  
 PG# = perennial graminoid  
 SH# = shrub  
 TR# = tree

**Soil Surface (do not use litter):**  
 Species Code (for basal intercept)  
 R = rock fragment (>5 mm (~1/4 in) diameter)  
 BR = bedrock, M = moss  
 LC = visible lichen crust on soil  
 S = soil without any other soil surface code  
 EL = embedded litter (see page 10)  
 D = duff

\*Bare ground occurs ONLY when Top canopy = NONE, Lower canopy layers are empty (no L), and Soil surface = S.