

April 2014

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**Protocol  
for  
Incidental Take Permit and Authorization  
Slender Shovel-headed Leafhopper (*Attenuipyga vanduzeei*)**

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**Note**

*If carrying out a given protocol is not feasible, or multiple listed species in a given management area pose conflicts, contact the Bureau of Natural Heritage Conservation (NHC) at 608-264-6057. Staff in NHC will work with Science Services staff, species experts and managers to establish an acceptable protocol for a given site that will allow for incidental take without further legal consultation or public notice*

**I. Species Background Information**

**A. Status**

**State Status:** Endangered.

**Number of Known Sites in Wisconsin:** 4 sites total in the counties of Grant (2), Iowa (1), and Pepin (1).

**Global Range:** Originally it was likely found through the tallgrass prairie region of central North America. However, records are from only 5 states (Iowa, Illinois, Kansas, Minnesota, and Wisconsin), and possibly one Canadian province (Manitoba), if *A. joyceae* turns out to be a variant of *A. vanduzeei*.

**B. Habitat**

**Host plant:** Native prairie grasses, unknown for certain which species. Use may vary across its range. They may use/need different species for feeding by adults verses nymphs. Purported hosts include *Mulenbergia cuspidata*, *Sporobolus heterolepis*, and *Bouteloua curtipendula*.

**General Habitat Description:** Seems to be restricted to high quality, intact, dry to dry-mesic original (remnant) prairie with high diversity of grass species. All known contemporary and historic locations for *A. vanduzeei* are on limestone/dolomite substrates with the exception of one site on a deep sand deposit. They also have little

or no history of domestic livestock grazing.

### C. Life History

**Number of generations per year:** Univoltine (one generation per year).

**Over-wintering stage:** Likely as a first instar, which is the case with *A. platyrhynchus*.

**Over-wintering location:** Unknown (likely in the litter, duff, or soil surface).

**Adults active:** Late June through August.

**Single season dispersal ability:** Unknown. Females appear to not have functional wings. Neither sex has been observed to fly. Its relatively large size and slender shape make it unlikely to be dispersed by wind.

**Immatures active:** Fall (likely) and then May to mid-June.

## II. Management Protocol For Authorized Incidental Take

If the management activity is for the purpose of recovering, maintaining, or improving the grassland, prairie, or savanna ecosystem that includes habitat for *A. vanduzeei*, then incidental take is allowed if these conditions are followed:

### A. Burning

1. If no monitoring of *A. vanduzeei* is occurring, and

a. If burning in early spring (*see definition*),

Then you may burn up to 1/3 of the site's total area of dry to mesic prairie in any given spring, **as long as**, at least 1/2 of the dry to mesic prairie habitat remains unburned for at least two consecutive springs.

b. If burning at other times of the year,

Then you may burn up to 1/4 of the site's total area of dry to mesic prairie in any given 12 month period, **as long as**, at least 2/3 of the dry to mesic prairie habitat remains unburned for at least two consecutive growing seasons.

2. If monitoring of *A. vanduzeei* is occurring<sup>1</sup>,

Then other burn regimes may be employed under consultation with the DNR Bureaus of Natural Heritage Conservation and Science Services.

<sup>1</sup> *At least 2 years of baseline monitoring must occur before burning begins, and the monitoring must follow protocol acceptable to the DNR Bureaus of Natural Heritage Conservation and Science Services.*

## **B. Mowing/Haying**

1. If no monitoring of *A. vanduzeei* is occurring, and

a. If mowing/haying once between May 11th and Sept. 30th, and

1) If allowing at least 2 years before re-cutting more than 1/2 of the previously cut portion of the site's dry prairie habitat,

- Then you may cut up to 3/4 of the site's total dry to mesic prairie habitat at a minimum cut height of 6" above the ground.

2) If allowing at least 3 years before re-cutting more than 1/2 of the previously cut portion of the site's dry to mesic prairie habitat,

- Then you may cut up to 7/8 of the site's total dry to mesic prairie habitat at a minimum cut height of 6" above the ground.

b. If mowing/haying between Oct. 1st and May 10th,

- Then there are no restraints on the activity.

2. If monitoring of *A. vanduzeei* is occurring<sup>1</sup>,

Then other cutting regimes may be employed under consultation with the DNR Bureaus of Natural Heritage Conservation and Science Services.

<sup>1</sup> *At least 2 years of baseline monitoring must occur before cutting/mowing begins, and the monitoring must follow protocol acceptable to the DNR Bureaus of Natural Heritage Conservation and Science Services.*

**C. Selective Tree/Brush Cutting**

As long as heavy equipment is not used and the host plants are not buried under cut materials, there are no restraints on this activity.

**D. Grazing**

Allowed only under consultation with the DNR Bureaus of Natural Heritage Conservation and Science Services.

**E. Use of Herbicide**

As long as native prairie grasses are not being affected, there are no restraints on the use of herbicide.

## Presence/Absence Survey Protocol

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Personnel conducting the surveys must be adequately trained in the use of sampling techniques and leafhopper genus *Attenuipyga* identification. The training must include field experience.

**Sampling period:** July 1 to Aug. 25.

**Weather conditions:** Air temp: 75 to 90 F  
Wind speed: depends on sampling method used (see below)  
Sky: clear to partly cloudy  
Foliage must be dry.

**Time of day:** 10 am to sunset.

**Number of visits per site:** Make a minimum of 3 visits in a season, with not less than 4 days between visits.

**Sampling effort per site visit:** Sample a minimum of 10 patches of *Mulenbergia cuspidata*, *Sporobolus heterolepis*, *Bouteloua curtipendula*, or some combination of these species, for every 20 acres of dry to dry-mesic prairie habitat. If the same site is to be resampled for multiple years, make note as to where the species is found, and be sure to resample those same spots in the future. *A. vanduzeei* tends to be localized in its distribution and remains true to those locations over time.

**Sampling method:**

Sweep netting: Wind speed must be below 10 mph. Use 15 to 18 inch diameter sweep nets with 3 to 5 foot long handles. Leafhoppers are sensitive to vibrations and movement, and quickly drop down into the duff when disturbed. Therefore, the target plants must be approached quickly, but quietly. Make just one fast sweep tight across the plant's surface as you quickly step (lunge) towards the plants with the net well out in front of you. If you are in a large patch of target grasses, additional sweeps may be made with each long forward step through the patch. Approach target plants with the sun in front of you (i.e., your shadow behind you). Technique is important.

or

Vacuum sampling (modified leaf blower): Wind speed may vary from 0 to 20 mph. Vacuum the surface and down into the duff of the target grasses. Under ideal weather conditions, the vacuum method is only slightly more effective than the sweep net at finding leafhoppers. However, under windy conditions (even just an occasional gust above 10 mph) and during temperatures either above or below 75 to 90 F, the vacuum is much more effective than the sweep net. Leafhoppers tend to retreat down into the duff when conditions are too cool, too desiccating (hot and sunny), or too windy.

## Definitions

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**Site:** Any contiguous patch of prairie vegetation or clusters of patches of prairie vegetation not separated from one another by more than 300 ft. of open (non-brush/tree) cover or by more than 20 ft. of dense brush/tree cover. (Note: roads and trails do not constitute barriers to dispersal.) If the area straddles a property line, the different ownerships must be considered different sites, unless net-veined leafhopper survey/management agreements exist between the owners.

**Early Spring:** Any time prior to the 7th day after the first opening of pasque flowers (*Anemone patens*) on the site. If no pasque flowers are on site, the closest population with a slope aspect similar to the site in question may be used.