

**Prairie Species-at-Risk
Beneficial Management Practices Project**

**Draft Agricultural Beneficial Management Practices for Sprague's Pipit
(*Anthus spragueii*) on the Canadian Prairies**

October 20, 2007

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Introduction

Sprague's Pipits breed from northcentral Alberta to central Manitoba, south to Montana and northcentral South Dakota, and east to northwestern Minnesota. The majority of high quality breeding habitat occurs in Canada on lands also used for agricultural purposes (Figure 1). Sprague's Pipits use grasslands with vegetation of intermediate height and sparse to intermediate density. They are most abundant on native prairie, although they will use tame grassland in some areas. They also avoid areas with extensive tree or shrub cover. As a result, maintaining healthy rangeland is beneficial to the sustainability of the Sprague's Pipit population.

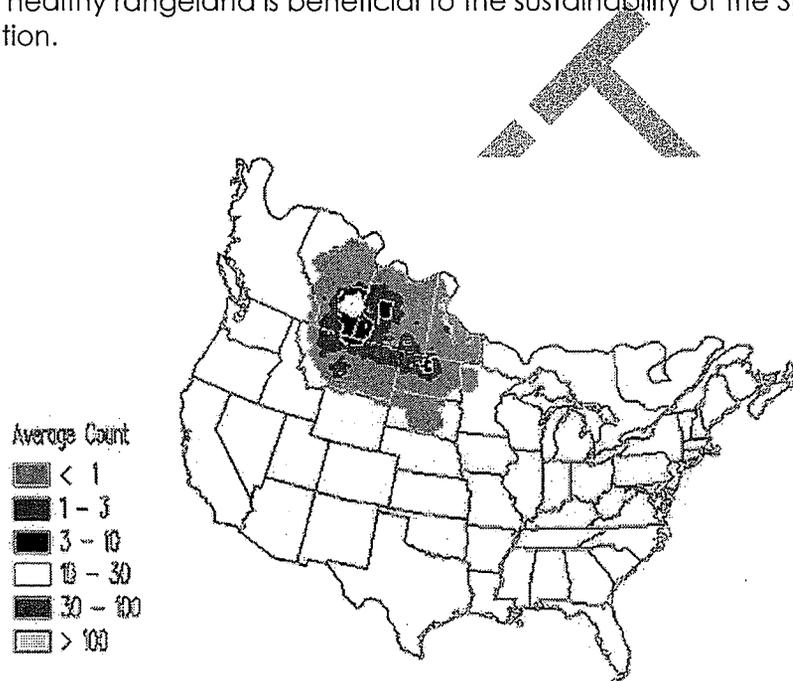


Figure 1. Breeding range of Sprague's Pipit based on breeding bird surveys.
(Gough, G., Sauer, J.R., Iliff, M. Patuxent Bird Identification InfoCenter. 1998. Version 97.1. Patuxent Wildlife Research Center, Laurel, MD. URL: <http://www.mbr-pwrc.usgs.gov/id/framlst/infocenter.html>)

Shape, size and minimum area requirements:

Sprague's pipit requires moderately large blocks of unfragmented, primarily native grassland as breeding and foraging habitat. Sprague's pipit are found in patches of native prairie 65 ha or larger but productivity of pipits tends to be higher in larger patches.

Sprague's pipits are sensitive to landscape fragmentation. They avoid nesting near trees, shrubs, roads and possibly pipelines. Since they are so sensitive to fragmentation, a lower ratio of edge habitat is best making square prairie remnants better than irregularly shaped patches.

Recommended Beneficial Management Practices:

- Retain fragments of native prairie in patches of 65 ha or more.

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Woody vegetation (i.e., shelterbelt planting and tree or shrub invasion):

Sprague's pipit avoids treed areas and are not found in grasslands with shrub cover greater than 20%. Studies have shown that Sprague's pipit is rarely found within 100m of trees or shrubs. Therefore, linear shelterbelts tend to alienate more habitat than circular or square patches of woody vegetation. This intolerance of woody vegetation by Sprague's pipit is likely related to the association of predators and woody vegetation.

Recommended Beneficial Management Practices:

- Do not plant trees or shrubs on or within 100m of native or tame grassland.
- Reduce or remove woody vegetation in native or tame grassland using methods (e.g., use burning, grazing, mowing or manual removal) that do not result in long-term harm to herbaceous vegetation

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Seeding cultivated land to perennial cover

Sprague's pipit is associated with vegetation in the 10 to 30 cm height range and areas with moderate amounts of litter, residual vegetation and minimal amounts of bare ground.

Sprague's pipits tend to do a lot of walking. While tending their nests they scurry under cover of vegetation to catch prey. They therefore require vegetation that is tall and dense enough to hide their activity, but not so dense that they have trouble moving around.

Sprague's pipit will forage and nest in native or tame grasslands if vegetation is not too tall or too dense; however, the density of nests in tame grasslands is much lower than in native prairie. For example, alfalfa and sweetclover have shrub-like growth forms and are avoided by Sprague's pipit. Prostrate forms of legume such as clover, milk vetch, trefoil or native legumes such as purple prairie clover are more likely to be used as habitat by Sprague's pipit.

Coarse grasses like smooth brome grow too tall and dense and are avoided by Sprague's pipit. Native grass mixes, Kentucky Bluegrass or less invasive species like meadow brome are more likely to be used as habitat. (Note: Kentucky bluegrass is an invasive grass species that is sometimes restricted in forage mixes seeded for conservation purposes. It is most invasive in the Moist Mixedgrass and Aspen Parkland ecoregions and should not be seeded within 0.5 miles of native prairie).

Species that are aggressive competitors, like crested wheatgrass, do not provide good Sprague's pipit habitat because litter levels are too low and bare ground coverage is too high.

Sprague's pipits do not nest on cultivated land and occurrences of pipit in crop or stubble fields is thought to be related only to resting or foraging during migration.

Recommended Beneficial Management Practices:

- Convert cultivated land, especially adjacent to native prairie, to perennial cover.
- Seed a pure grass mix or a grass mix that includes a prostrate form of legume.
- Seed finer grasses in forage mixes.
- Seed herbaceous species that grow well in a stand with other species.

Invasive alien plant species (including agronomic forages):

As indicated in previous sections, Sprague's pipit is mainly influenced by vegetation height and growth form. Invasive alien plant species can affect pipit habitat by changing those factors. Although studies have not been conducted on all invasive alien plant species in relation to Sprague's pipit, several species have been investigated. Smooth brome, sweet clover and alfalfa can have a negative effect on Sprague's pipit habitat, although alfalfa is less invasive than smooth brome and sweet clover in most habitats. Smooth brome invasion into native grassland can greatly increase the height and thatch of the habitat, rendering it unattractive to Sprague's pipit. Sweet clover and alfalfa increase the height of vegetation and have a shrub-like growth form that reduces habitat suitability for Sprague's pipit. Haying and grazing can reduce the negative effects of these plant species on Sprague's pipit.

Crested wheatgrass invasion into native grassland can increase vegetation height above the preferential height for Sprague's pipit but it otherwise has limited effect. Kentucky bluegrass invasion into native grasslands appears to have little effect on Sprague's pipit.

Recommended Beneficial Management Practices:

- Manage invasion of exotic plant species, especially smooth brome, sweet clover and alfalfa, in native grassland using methods that do not harm the native herbaceous vegetation. Often, targeted early season grazing for a short duration will stress invasive forage species.

Prescribed fire:

As indicated in previous sections, Sprague's pipit is mainly influenced by vegetation height and growth form and litter accumulation. The goal of prescribed burning in providing a benefit to Sprague's pipit would be to reduce woody or exotic vegetation. Although burning could be used to reduce vegetation that is too dense or too tall to attract Sprague's pipit, other management tools such as grazing can be used to meet this goal as well.

Prescribed burns in either spring or fall can be used. Spring burns are most effective at reducing invasive exotic plants and woody vegetation but tend to be more damaging to herbaceous vegetation than a fall burn. Spring burns may also be detrimental to Sprague's pipit populations if they occur during the nesting season. Vegetation is usually too sparse or short to attract many pipits the first year or two following burning, although productivity of vegetation is dependant on moisture and soils. Benefits show up in the third and subsequent years.

Fire intensity should be moderate – i.e., intense enough to reduce woody or exotic vegetation, but not so intense as to reduce the regeneration of herbaceous perennial plants. Frequency of burning should be based on natural fire regimes. Burns in the Aspen Parkland would be most frequent at 5 to 10 year intervals, burns in Moist Mixedgrass or Cypress Uplands at a moderate frequency of 10 to 15 years and burns in the dry Mixedgrass at a low frequency of more than 20 years. Burning in the dry Mixedgrass ecoregion may not be beneficial at all if vegetation composition and structure can be managed using grazing.

Recommended beneficial management practices:

- Use prescribed burning to manage woody or invasive, exotic vegetation. Burn at a moderate intensity in spring or fall and at a natural fire return interval for your ecoregion.

Domestic livestock grazing:

Sprague's pipit prefers vegetation in the 10 to 30 cm height range. It prefers moderate amounts of litter and residual vegetation and minimal amounts of bare ground. Overall, this means that rangelands that rate Healthy or Healthy with Problems using current range health assessment methodology developed for Canadian prairie ecosystems should provide adequate habitat for Sprague's pipit.

The factors that most influence the appropriateness of rangelands for Sprague's pipit are a combination of stocking rate and duration, which equals grazing intensity. High grazing intensity can reduce vegetative cover to the point where habitat is no longer attractive to Sprague's pipit and greater stocking densities over extended periods can also increase risk of trampling. On the other hand very low grazing intensity or idling can result in vegetation that is too high or too dense to attract pipits, particularly in moist areas. In addition, there is no evidence that rotational grazing is any better or worse than continuous grazing. Using either grazing regime, as long as carryover is of appropriate height and litter content, the site will be attractive to pipits.

Keeping in mind the habitat requirements of Sprague's pipit, it is relatively easy to understand that recommended grazing intensities differ by ecoregion. For example, the Aspen Parkland with its abundance of moisture and nutrient-rich soils is capable of producing dense, tall vegetation - both herbaceous and woody. A certain level of grazing is therefore required to minimize woody vegetation growth and to keep vegetation height and density at levels that remain attractive to Sprague's pipit. In the Dry Mixedgrass or Semi-arid Mixedgrass of southwestern Saskatchewan and southeastern Alberta, the other extreme exists. The low moisture and nutrient availability means vegetation is sparse and short and only rarely requires grazing to make it attractive to Sprague's pipit.

Recommended beneficial management practices:

- Moderate grazing intensities are most beneficial in the Aspen Parkland ecoregion
- Low to moderate grazing intensities are most beneficial in the Moist Mixedgrass ecoregion
- Low grazing intensities are most beneficial in the Dry or Semi-arid Mixedgrass ecoregion

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Forage harvesting (i.e., mowing, raking, baling)

Sprague's pipit prefer native grassland for breeding, however, they do occasionally nest in tame forage, although the density of nests ~~is~~ ^{could be} much lower than in native prairie. Tame grassland is also used by pipits for foraging. The amount of use Sprague's pipits make of tame forage depends on vegetation height and density and the timing and frequency of haying. Tame hayfields that are not hayed or grazed are not used by Sprague's pipit because the vegetation is too tall and dense.

Hay harvesting can reduce Sprague's pipit nest success. Native hay, which is usually wetland vegetation, is usually mowed in August or September and, therefore, does not conflict with the Sprague's pipit nesting season.

Recommended beneficial management practices:

- Harvesting of tame hay should be delayed until after Sprague's pipit nesting season. Grassland birds begin nesting earlier in southern areas; therefore, haying should be delayed until after July 15th in the dry Mixedgrass ecoregion, after July 21st in the Moist Mixedgrass, southern Aspen Parkland and Cypress Uplands and after July 31st in the northern Aspen Parkland ecoregion.
- Because tame hayfields get very tall and dense, mowed fields provide better habitat than fields idled for more than one or two years.

Roads and Other Linear Developments:

Sprague's pipits make roads the edge of their territory and they avoid crossing roads. For the purposes of these BMPs, a road is defined as a linear corridor raised above the level of the surrounding landscape using some type of gravel or fill. Trails, defined for our purposes as being tracks across the land that have not been improved by raising the level of the roadbed for vehicular use, have much less impact than roads.

The effects of roads may be simply a loss of habitat; however, the impact on Sprague's pipit may also be a result of increased dust, noise and frequency of vehicular traffic on roads versus trails. In addition, linear developments, including roads and pipelines, tend to support invasive, exotic vegetation, which is avoided by Sprague's pipit.

Recommended beneficial management practices:

- Avoid constructing built-up roads in native or tame grassland.
- Revegetate linear developments such as roadsides and pipelines with native vegetation or fine, mid-height tame forages.

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