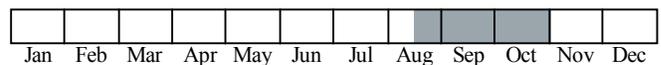


Best Survey Period



**Status:** State threatened

**Global and state rank:** G5/S2

**Other common names:** slim-spike or slimspike three-awn grass, spiked needlegrass

**Synonym:** *A. longispica* Poiret

**Family:** Poaceae (also known as Gramineae; grass family)

**Taxonomy:** Michigan plants are referred to var. *longespica*, the typical variety. Plants south and west of Michigan include var. *geniculata* (Raf.) Fern., which is characterized by glumes up to 9 mm in length and lateral awns longer than in var. *longespica*.

**Total range:** *Aristida longespica* is a broadly distributed species primarily of the eastern and south-central United States, ranging from New Hampshire through southern Ontario and Minnesota, occurring west to the Great Plains, including South Dakota, Nebraska, and Kansas, and south to the Gulf from Florida to Texas and just inside the east border of New Mexico. Outside the main distribution it is also known in Arizona and Washington State. This species is considered rare in Illinois, Iowa, Ontario, Rhode Island,

and Vermont and notably is of undetermined status in several states (NatureServe 2003).

**State distribution:** Three-awned grass is restricted to southeastern Lower Michigan, where this species has been documented primarily from Wayne County (seven sites) and St. Clair County (two sites), with single localities known for Gratiot, Midland, Monroe, and Oakland counties. Reports that remain unevaluated at present will potentially result in the addition of several new occurrences to the statewide database. All of these occurrences were found in glacial lakeplain landscapes, frequently in association with remnant wet prairies. Most of Michigan’s localities have been documented over approximately the last decade and a half as familiarity with the region’s lakeplain wet prairies has increased.

**Recognition:** Three-awned grass is an obscure grass species that could be easily overlooked, even when occurring in abundance because of its **small, slender, delicate habit**. An annual species growing in **loose clumps** and typically attaining ca. 1-2 dm in height, *A. longespica* produces a narrow flowering stem of crowded, upright spikelets. It is distinguished from other three-awned grasses in Michigan primarily by the **size and shape of the floret awns. The middle awn, which lacks spiral loops at its base, is ca. 7-12 mm**



**long and at maturity is strongly reflexed, whereas the two lateral awns are 1-4 mm long and are erect to only slightly spreading.** This species is most likely to be confused with *A. necopina*, with which it may commonly occur. *A. necopina* is superficially similar but produces significantly longer awns, with a middle awn that ranges from ca. 15-33 mm long and lateral awns that range from 9-26 mm long, and all of the awns are spreading. One technique helpful in the determination of three-awned grasses, if observed early, is to simply collect plants and dry them without pressing, so as to induce the awns to assume their characteristic shape.

**Best survey time/phenology:** *A. longespica* is a late season species, and is best sought from approximately mid-August through October, although plants may remain recognizable through late fall, and can occasionally be collected even later and determined by experienced botanists.

**Habitat:** All of Michigan's occurrences of three-awned grass have been found in sandy substrates in glacial lakeplain landscapes, where this species is typically associated with lakeplain wet prairie or lakeplain wet-mesic prairie. These habitats are characterized by a fluctuating water table, with cyclical flooding and periodic drawdowns that expose the seed bank of this and several other graminoids by late season. Associates include such species as *Andropogon virginicus* (broom-sedge), *Aristida basiramea* (three-awned grass), *Aristida necopina* (three-awned grass), *Calamagrostis canadensis* (blue-joint), *Euthamia graminifolia* (grass-leaved goldenrod), *Juncus canadensis* (Canada rush), *Hypericum gentianoides* (gentian-leaved St. John's-wort), *Hypericum prolificum* (shrubby St. John's-wort), *Lechea villosa* (hairy pinweed), *Lespedeza capitata* (prairie bush-clover), *Ludwigia alternifolia* (seedbox), *Monarda punctata* (horsemint), *Polygala sanguinea* (field milkwort), *Polygonum tenue* (slender knotweed), *Quercus palustris* (pin oak), *Scleria pauciflora* (few-flowered nut-rush), and *Scleria triglomerata* (tall nut-rush), among numerous other lakeplain prairie species.

**Biology:** *A. longespica* is an annual, warm season grass, occurring in habitats with fluctuating water tables. Fire is also likely an important factor in perpetuating this species by inhibiting woody plant

succession and maintaining the open, graminoid-dominated communities in which this species thrives.

**Conservation/management:** Michigan's best populations of three-awned grass occur in lakeplain wet prairie remnants. Unfortunately, many of these sites, some of which support large populations, are often degraded prairie relicts occurring within or near fast developing urban centers. This species appears to have persisted in part because of soil disturbance activities (e.g. borrow pits), and in some cases, has even emerged from the soil seed bank as a result of activities along highways. One of Michigan's largest populations of three-awned grass occurs within and around the Detroit Metropolitan Airport, existing in the remaining lakeplain prairies of the complex and even in abundance in proximity to runways and other areas where ongoing maintenance occurs. However, ongoing stewardship, including the use of prescribed fire management, is being conducted in one remnant lakeplain prairie site in Wayne County and in a high quality lakeplain prairie complex in St. Clair County. These stewardship initiatives should result in information that will provide helpful guidance in maintaining three-awned grass and several of its rare associated species.

**Research needs:** In addition to experimental restoration management and monitoring, life history studies focusing on population demography and genetic diversity would assist in conservation.

**Related abstracts:** Lakeplain wet prairie, lakeplain wet-mesic prairie, oak barrens, Gattinger's gerardia, Skinner's gerardia, chestnut sedge, Leiberg's panic grass, smooth beard tongue, few-flowered nut-rush, purple milkweed, Sullivant's milkweed, Hill's thistle, northern appressed clubmoss, Eastern prairie fringed orchid, Allegheny plum, meadow-beauty, blazing star borer, culver's root borer, eastern box turtle, red-legged spittlebug, Silphium borer

#### Selected references:

Flora of North America Editorial Committee. 2003. *Flora of North America North of Mexico. Volume 25: Magnoliophyta: Commelinidae (in part): Poaceae, part 2.* Oxford University Press. New York, NY. 783 pp.



NatureServe. 2003. NatureServe Explorer: An Online encyclopedia of life [web application]. Version 1.8. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: November 11, 2003).

Voss, E. G. 1972. Michigan Flora. Part I. Gymnosperms and Monocots. Bull. Cranbrook Inst. Sci. 55 and Univ. of Michigan Herbarium. xv + 488 pp.

### **Abstract citation**

Penskar, M.R. 2004. Special plant abstract for *Aristida longespica* (three-awned grass). Michigan Natural Features Inventory. Lansing, MI. 3 pp.

Copyright 2004 Michigan State University Board of Trustees.

Michigan State University Extension is an affirmative-action, equal-opportunity organization.

Funding for abstract provided by the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center via the Great Lakes Commission.

