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## Notes on Iowa Grasses

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1.

NOTES ON IOWA GRASSES

ROBERT P. ADAMS

In presenting this list of Iowa Grasses, no claim is made of reporting any species new to the state. The list does include, however, a number of rarer forms, species that are very local in habitat or in distribution and several strays and introductions that are perhaps worthy of mention. There have been a number of systematic lists of Iowa grasses published heretofore. None of them have emphasized to any great extent the habitat, the ecological side of their distribution. It is to stress this phase of grass study, that the present paper is written. Grasses furnish valuable criteria of the ecological conditions of the area in which they grow. The paper is based on extensive field observations and studies, ranging over several years and including many parts of the state. Specimens listed are preserved at the herbarium at Iowa City. They were selected from a collected list of some 100 species. In this field work, which I consider one of the most important phases of botanical study, no efforts were spared to gain a proper appreciation of habitat and relationship with other plants. Dates were preserved, that flowering and fruiting seasons might be ascertained. The soil composition, moisture supply, exposure and other ecological factors were considered.

The nomenclature of Gray's manual, seventh edition, is followed, except in the case of one species, which will be explained in its proper place.

The date of collection and the flowering or fruiting condition is included in each case.

These grasses have been grouped according to the several habitats in which they are normally found.

1. Dry sand of dunes moraines, etc.

*Paspalum ciliatifolium*. Michx. Locally abundant on the dunes west of Bayfield, Muscatine Co. Collected Sept. 1, 1927. Fruit. Also noted fairly abundant on sand flats at Prairie du Chien, Wis. (opposite McGregor, Ia.) and on sandy alluvium of old Lake Calvin, south of Iowa City.

*Aristida tuberculosa* Nutt. Very local in pure sand at Big Mound Louisa Co. and on Muscatine Island. Collected October 14, 1929. fruit.

*Triplasis purpurea* (Walt) Chapm. Common on sand of Big Mound. A very local grass. Collected October 14, 1929. fruit.

2. Sterile habitat, dry, thin, gravel or partial sand.

*Aristida basiramea* Engelm. Locally abundant on thin, dry, rocky soil in Gitchie Manitou Park, Lyon Co. Collected August 29, 1929. fruit. Also from sterile situations around Bayfield.

*Aristida intermedia* Scribn. and Ball. Abundant on high dry hills at Clinton, Ia. Clay and sand soil. Collected Sept. 15, 1929. fruit.

*Aristida oligantha* Michx. Very local on an old gravelly moraine north of Iowa City. Collected Sept. 28, 1929. fruit.

Quite common on high loess bluff, Sioux City. Collected August 28, 1929. fruit.

3. Prairie. This includes the high dry prairie, the more common upland and the border habitats.

*Stipa viridula* Trin. The specimens of this species found growing in the ballast of the railroad yards at Marquette, Clayton Co. Ia. Its native range is the prairie of western Minnesota and the Dakotas. A rare introduction in Iowa. Collected June 9, 1929. fruit.

*Schedonardus paniculatus* (Nutt) Trel. Found growing only on the thin dry soil overlaying Sioux quartzite in Gitchie Manitou Park. Rare and very local only in northwest Lyon Co. Collected August 29, 1929. fruit.

*Bouteloua oligostachya* (Nutt) Torr. This species occurs on dry upland prairie locally, at a few places in northwestern Iowa. Collected August 29, 1929, in fruit in Gitchie Manitou Park. Also noted at Lakeside Laboratory Okoboji.

*Calamovilfa longifolia* (Hook) Hack. A small amount of this species was found growing in the roadside ditch of a high prairie sag in northwest Lyon Co. Its more normal habitat is reported to be more sandy situations.<sup>1</sup>

*Tridens flavus* (L.) Hitchc. This species was growing as a plant of prairie borders in clay loam soil along the now abandoned line of the Elmira branch of the C. R. I. & P. R. R. east of Iowa City. Collected October 16, 1924. Also noted at Wyoming, Hill Muscatine Co., in a more sterile exposed situation. A rare grass.

4. Wet places, including low prairie and swamps.

*Hierochloë odorata* (L.) Wahlenb. This specimen was found growing in dry upland woods north of Homestead, Iowa Co. Its natural habitat, however, is low places. Its distribution in Iowa is northern and central. Not reported from this part of the state previously.

Collected April 30, 1929. flower.

*Diplachne fascicularis* (Lam) Beauv. Railroad ballast at Sioux City stock yards. Its habitat is wet soil and its distribution as given in Gray and in Britton is described as southern, extending north<sup>2</sup> to Missouri and<sup>3</sup> south Illinois. This locality is so far as known, the second from which the species has been collected in the state.<sup>4</sup>

<sup>1</sup> Pammel, L. H. Grasses of Iowa. Page 182. 1903.

<sup>2</sup> Gray, New Manual of Botany. Seventh edition p. 148.

<sup>3</sup> Britton and Brown, Flora of Northeastern U. S. second edition, P. 236. Vol. I.

<sup>4</sup> Cratty, R. I. Iowa Academy Proceedings. Vol. XXXV. p. 109.

Mr. R. I. Cratty reports it from Ft. Dodge in 1911, two collections, both the same year. This grass is assigned to Brittons *Diplachne* rather than to *Leptochloa* of Gray, since it seems more nearly related to the Tribe Festuceae than to the Chlorideae. Specimens collected August 29, 1929. flower.

*Milium effusum* L. A species of swampy places. From a wet roadside ditch south of the Aviation field below Iowa City, Collected September 10, 1928. fruit. Also noted in a shaded marshy spot north of cemetery at Iowa City.

5. Woods. Grasses growing in a woodland habitat are, as a rule, scattered, never forming a turf or even bunches of any size. The individuals are usually widely separated from one another.

- (1). Open woods. Trees more or less scattered, but yet shading the ground. Little shrub or other undergrowth.

- (a). Dry. Soil high and dry or exposed to drying influences.

*Danthonia spicata* (L.) Beauv. Not a common grass. Its habitat is open, rather dry rocky woods. Collected July 3, 1929, at Pine Hollow Dubuque Co.

- (b). Damp. Usually lower and less exposed to drying influences.

*Agrostis perennans* (Walt) Tuckerm. Not abundant. Collected in damp rather sandy woods in little used portion of Bever Park at Cedar Rapids. September 28, 1929. fruit. Also found in damp open spot at edge of woods, Homestead.

- (2). Deep woods. A habitat of dense shade, and typical mesophytic conditions.

*Brachyletrum erectum* (Schreb) Beauv. A not uncommon grass of deep rocky woods. Collected July 3, 1929. Flower. Dubuque Co. Pine Hollow.

*Poa sylvestris* Gray. Much scattered in dense woods. Collected July 2, 1929, at Pine Hollow, Dubuque Co.

*Bromus altissimus* Pursh. Found growing very sparsely in the deeper woods on Lakeside Laboratory grounds, Okoboji, Dickinson Co. Collected August 30, 1929. flower.

*Bromus incanus* (Shear) Hitchc. Occasional in deep woods near Amana, Iowa Co. Collected October 21, 1929. fruit. Also at Pine Hollow, July 2, 1929, in flower.

6. Introduced. Grasses that are distributed over the state through man's conscious or unconscious influence.

- (1). Cultivated. An economic grass establishing itself as a part of the flora.

*Lolium multiflorum* Lam. An escape along an Iowa City street. Collected September 24, 1929. flower.

- (2). Weedy. Our introductions that become thoroughly established are mostly of this type.

*Digitaria humifusa* Pers. Collected on a grassy bank along the Iowa river at Iowa City, September 13, 1929. This species is included here, not as a rare one, but as one often

overlooked. In discussing weedy *Digitaris*, *D. sanguinalis* is usually mentioned, whereas in many cases, *D. humifusa* is really under consideration. It has a wide distribution in sandy soil and is even more common in lawns than its related species.

*Bromus tectorum* L. This rather recent weedy introduction is becoming increasingly prevalent along railroads and in waste places about cities. It does not as yet, however, seem to have successfully invaded cultivated fields and grass lands. It is potentially dangerous however, and will no doubt when fully established, have a much wider distribution. Collected May 20, 1929, in flower on railroad ballast east of Muscatine. Also June 2, 1929, on ballast west of Iowa City. fruit.

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