

**PANICUM COLORATUM NEW FOR ARIZONA,
AND ECHINOCHLOA HOLCIFORMIS NEW FOR THE
UNITED STATES**

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ABSTRACT

Two new records for Arizona, one of which is new to the United States, are reported. The introduced *Panicum coloratum* L. has previously been found in neighboring states, and is now known from one location in southern Arizona. *Echinochloa holciformis* (H.B.K.) Chase is known from several Mexican states but has not formerly been documented north of the international border. *Phytologia* 91(2): 347-352 (August, 2009).

KEY WORDS: *Panicum coloratum*, Kleingrass, *Echinochloa holciformis*, Poaceae, Arizona.

Author's note: John Raymond Reeder (1914-2009) had been planning a note about these two new records when, in January 2008, he and his wife, Charlotte, were seriously injured in a car accident. Sadly, John never fully regained his former vigor. I am happy to have collaborated with him in the field and herbarium, and to have been included in discussions of these two records. I have prepared this brief communication, at long last, as yet another of his contributions to the grass flora of North America.—KM

Introduced from Africa, the perennial *Panicum coloratum* L. was first documented in Texas from nursery collections in the 1940s and 1950s, and has more recently been collected in uncultivated situations in Texas (Flora of Texas Database, www.biosci.utexas.edu/prc/Tex.html, Feb 2009) and in New Mexico (New Mexico Biodiversity Collections Consortium, nmbiodiversity.org, Feb 2009). The plant, commonly called Kleingrass, was grown in the Soil

Conservation Service Nursery in Tucson, Arizona, in the 1940s, and has been collected in Sonora, México, just south of the border with Arizona (University of Arizona Herbarium Database, ag.arizona.edu/herbarium/search, Feb 2009). The collection reported here is believed to be the first record of the grass outside of cultivation in the state of Arizona. Although favoring the tropics and subtropics, and often found in wet ground (Freckmann and Lelong 2003), occurrences in the southwest region tend to be in ruderal settings but range in elevation up to 1600 m (5250 ft) above sea level.

SPECIMEN: USA. ARIZONA. Cochise County: Parker Canyon Lake parking area, surrounded by vegetation of oaks, junipers, etc. Several clumps, this specimen from one ca. 80 cm diam.; the plants to 1 m tall. Elev. 1600 m. 22 Aug 2002, J.R. Reeder 9846 & C.G. Reeder (ARIZ, US) (Fig. 1).

The New World native *Echinochloa holciformis* (H.B.K.) Chase habitually grows in saturated substrates, often in shallow water and standing a meter or more tall. It is known from several Mexican states including Aguascalientes, Durango, Guanajuato, Jalisco, México, Michoacán, Nayarit, and Puebla, as well as south to Guatemala (McVaugh 1983; Rzedowski and Rzedowski 2001). The nearest occurrence to Arizona documented by herbarium specimens comes from neighboring Sonora, México (A.L. Reina-G. 98-1371, 19 Sep 1998, ARIZ 349502!), about 325 km (203 mi) south of the international border. Since *E. holciformis* was first found in Arizona in 2002, several more collections have been made of this species from three localities, all in southern Santa Cruz County; these are, to-date, the only known records for the United States.

Echinochloa holciformis is distinguished from congeners, particularly *E. polystachya* (H.B.K.) Hitchc. and *E. oplismenoides* (E. Fourn.) Hitchc. that are both known from the southern continental United States (Michael 2003), by the combination of glabrous culms, a conspicuously hairy ligule, an empty sterile (lower) floret, and awn of the sterile lemma ranging 3.5-5.0 cm long (see McVaugh 1983). Gould (1975: 533) reported a specimen from Texas, cited as “Williams in June, 1950 (US)” of which he wrote, “appears to be *E. holciformis* (H.B.K.) Chase. This is similar to *E. polystachya* in being a perennial

with well-developed, hairy ligules and large spikelets, and with stamens in the lower floret. ... The specimen from Jefferson County, Texas, has puberulent culm nodes and awns to 20 mm long." Although we failed to locate this specimen, it seems apparent from Gould's description that the plant represented was, in fact, consistent with *E. polystachya*, and was not *E. holciformis*. The annual species *E. oplismenoides* was, like the records of *E. holciformis* reported here, first documented in the United States by a collection from southern Arizona (Fishbein 1995); although broadly sympatric, it is readily distinguished from *E. holciformis* by a glabrous ligule and shorter awns.

Echinochloa holciformis is regarded as a perennial in its southern range (McVaugh 1983; Rzedowski and Rzedowski 2001), however the plants in the southern Arizona populations are clearly annual, with individuals dying completely to the substrate in the fall and populations varying greatly in size from year to year. The plants typically grow in shallow water, and often develop stout, fibrous roots from the lower nodes, but we have not observed structures that could be interpreted as creeping stems or rhizomes among the populations reported here.

SPECIMENS: USA. ARIZONA. Santa Cruz County: **Canelo Hills**, ca. 1 km N of Canelo Pass summit, rocky slope in oak-juniper area. Growing thickly on the margin of a cattle tank full of water. Elev. 1650 m. 10 Oct 2002, J.R. Reeder 9894 & C.G. Reeder (ARIZ). **Canelo Hills**, ca. 1 km S of trail head to Arizona Trail along FS-799. Around a cattle tank a short distance W of the road, base of plants in the water. Elev. 1550 m. 7 Sep 2004, J.R. Reeder 10002 & C.G. Reeder (ARIZ); 7 Sep 2004, J.R. Reeder 10003 & C.G. Reeder (ARIZ); 22 Sep 2004, J.R. Reeder 10006 & C.G. Reeder (ARIZ, MO, US); 20 Sep 2005, J.R. Reeder 10020 & C.G. Reeder (ARIZ, CAS, MO, NMC, TEX, US). **San Rafael Valley**, just S of entrance to Little Outfit Ranch. Grassland with a few scattered oaks and junipers. On margin of cattle tank a short distance from the road. Elev. 1550 m. 20 Sep 2005, J.R. Reeder 10021 & C.G. Reeder (ARIZ, US); 15 Sep 2006, J.R. Reeder 10028 & K. Mauz (ARIZ, MO) (Fig. 2).

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LITERATURE CITED

- Fishbein, M. 1995. Noteworthy collections: *Echinochloa oplismenoides* (Fourn.) Hitchc. *Madroño* 42: 83.
- Freckmann, R.W. and M.G. Lelong. 2003. *Panicum* L., pp.450-488. *In*: Flora of North America vol. 25 – Magnoliophyta: Commelinidae (in part): Poaceae, part 2, M.E. Barkworth, K.M. Capels, S. Long and M.B. Piep, eds. Oxford University Press, New York and Oxford.
- Gould, F.W. 1975. The grasses of Texas. Texas A&M University Press, College Station.
- McVaugh, R. 1983. Gramineae. Flora Novo-Galiciana vol. 14, W.R. Anderson, ed. University of Michigan Press, Ann Arbor.
- Michael, P.W. 2003. *Echinochloa* P. Beauv., pp.390-402. *In*: Flora of North America vol. 25 – Magnoliophyta: Commelinidae (in part): Poaceae, part 2, M.E. Barkworth, K.M. Capels, S. Long and M.B. Piep, eds. Oxford University Press, New York and Oxford.
- Rzedowski, G.C. de and J. Rzedowski. 2001. Flora fanerogámica del Valle de México, second edition. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Pátzcuaro.



Fig. 1. *Panicum coloratum* L. Near Parker Canyon Lake, Cochise County, Arizona, 22 Aug 2002 (ARIZ).



Fig. 2. *Echinochloa holciformis* (H.B.K.) Chase. San Rafael Valley, Santa Cruz County, Arizona, 15 Sep 2006 (ARIZ).