

(29.7%) out of the 1043 grasses indigenous to the country. The subtribe Muhlenbergiinae currently consists of 10 genera and 173 species almost entirely restricted to the New World. A phylogenetic analysis based on internal transcribed spacer (ITS) and trnL-F sequences indicates that all nine of the smaller genera, *Aegopogon* (4 spp.), *Bealia* (1 sp.), *Blepharoneuron* (2 spp.), *Chaboissaea* (4 spp.), *Lycurus* (3 spp.), *Pereilema* (4 spp.), *Redfieldia* (1 sp.), *Schaffnerella* (1 sp.), and *Schedonnardus* (1 sp.), are nested within a paraphyletic *Muhlenbergia* (152 spp). Species diversity within the Muhlenbergiinae is greatest in México where there are at least 125 species, and 55 of these are endemic. Well-supported clades include species that exclusively exhibit PCK leaf anatomy (*Muhlenbergia* subg. *Muhlenbergia*, *Aegopogon*, and *Pereilema*), species that have sclerosed phloem and a crown of inflated cells associated with primary vascular bundles (*Muhlenbergia* subg. *Trichochloa*), and species that usually have 3-nerved and/or toothed upper glumes (*Muhlenbergia montana* complex). Another fairly robust clade includes all species of *Chaboissaea*, *Lycurus*, *Redfieldia*, *Schaffnerella*, and *Schedonnardus* with *Muhlenbergia wrightii*. *Muhlenbergia ramulosa* consistently appears to be the basal member of the group and not closely associated with other members of the Muhlenbergiinae. The most parsimonious solution, that also involves the least number of nomenclatural changes, is to recognize all species within *Muhlenbergia*. A revised subgeneric classification will be presented.

CYPERACEAE: EMERGING INVASIVE WEEDS OF NATURAL AREAS

Cyperaceae: malezas emergentes invasivas de áreas naturales

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Cyperaceae are among the worst agricultural weeds, e.g., *Cyperus rotundus* L., *C. difformis* L., *C. esculentus* L., *C. iria* L., *Fimbristylis miliacea* (L.) Vahl, and *F. dichotoma* (L.) Vahl. Many sedges are colonizers, adapted to natural and artificial disturbance, and exhibit a number of characteristics making them highly competitive, promoting survival in a wide range of environmental conditions, and facilitating both short- and long-distance dispersal. Despite this, Cyperaceae have generally been neglected as weeds of natural ecosystems. However, recently, a number of sedges have been reported to be invasive in natural areas of the southeastern United States, e.g., *Cyperus entrerianus* Boeck., *C. prolifer* Lam., *Oxycaryum cubense* (Poepp. & Kunth) Palla, *Eleocharis acutangula* (Roxb.) Schult., *E. mutata* (L.) R. & S., and *Scleria lacustris* C. Wright. Many Cyperaceae

are adapted to various natural communities less subject to disturbance, and many are known or suspected to be anthropically dispersed, and a surprising number are being intentionally transported by humans in the ornamental horticultural trade. Given such trends and the escalating frequency of long-distance travel by humans and their cargo, it is anticipated that many more Cyperaceae will be subject to dispersal by humans and that sedges will become increasingly detrimental to natural ecosystems. International and interdisciplinary collaboration among systematic and floristic botanists, weed scientists and other researchers, natural resource managers, and representatives of governmental agencies are essential for early detection and control of emerging problems with cyperaceous weeds.

Key words: Cyperaceae, sedge, invasive, weed, natural area.

Palabras clave: Cyperaceae, invasiva, maleza, área natural.

**NORTHERN MEXICAN CYPERACEAE –
SOME BIOGEOGRAPHICAL AND
CONSERVATION PROBLEMS**

**Cyperaceae del norte de México – Algunos
problemas biogeográficos y de conservación**

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The sedge (Cyperaceae) flora of northern Mexico (Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, Tamaulipas, and Durango) consists of 21 genera and perhaps 215 species and presents a transition from a predominantly southern Rocky Mountain and Great Plains flora dominating especially at higher elevations to a distinctively Mexican flora. Distinctive Mexican and tropical elements appear mostly in lower elevations and mesophytic habitats. Many of the more northern or even alpine elements including *Bolboschoenus fluviatilis*, *Bulbostylis capillaris*, many *Carex*, *Cyperus acuminatus*, *C. erythrorhizos*, *Fimbristylis thermalis*, *Scirpus microcarpus*, *S. pendulus*, and *Scleria verticillata* among others, are poorly known in Mexico and need further collecting. Totals for many genera are also quite uncertain because a number of new species and range extensions are likely to be found, many vouchers have not been studied, and some species are complexes in need of systematic study, including a number in *Carex* (*C. alma/C. agrostoides*, *C. endlichii*, *C. leucodonta/C. turbinata*, *C. spissa/C. ultra*, *C. xalapensis*), *Cyperus* (*C. manimae*, *C. ischnos*, *C. odoratus*, *C. seslerioides*), *Eleocharis* (*E. montevidensis*), and *Scleria* (*S. ciliata*, *S. reticularis*). Cyperaceae as a whole are relatively few in the Chihuahuan and Sonoran desert biomes, though some distinctive and rare endemic elements exist. The most fascinating elements are those adapted to extreme environments, include halophytes such as *Carex pringlei*, now extant at only one locality, the only known gypsum endemic *Carex* (*C. gypsophila* sp.