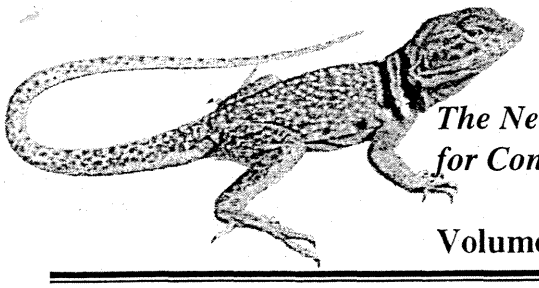

The Glade

The Newsletter of the Missouri Chapter of the Society for Conservation Biology

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Contents

The Corner

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I recently sent out an email to the MOSCB listserv in which I asked members about their thoughts on membership in environmental organizations. What follows incorporates the responses I received, as well as the views from a series of articles on the ecology-policy interface recently published in "Frontiers in Ecology and the Environment" (Feb 2003). As conservationists, we must individually decide what role advocacy plays in our professional and personal lives. Besides the ever important issue of time, our profession or employer may greatly influence this decision. For example, some argue that it is crucial for scientists to be objective so that credibility is maintained. Strict adherents to this would be unlikely to affiliate themselves with any environmental organizations, or would have very limited participation. Unfortunately, advocacy and objectivity both have their consequences. Certain environmental groups are frowned upon by some employers and membership may affect hiring, assignments, and personnel dynamics. In such cases, advocacy beyond that condoned by the employer could be jeopardizing and a decision will have to be made regarding whether to keep advocacy private. People will judge you despite your affiliations. However, it is important that we each consider our present situation and beliefs, and do some research on the objectives and activities of environmental organizations we are thinking of joining, before becoming official members. We must also remember that while environmental organization membership may stimulate and enhance advocacy, we are certainly capable of being advocates of our own volition. Many of us surely ask ourselves, "How can my work and accumulated knowledge help shape conservation initiatives and environmental policy?" One need not be an advocate to ask such an important and thoughtful question. MOSCB exists in part to facilitate communication between people of various backgrounds. I believe that one of the most effective ways to implement change is by extending our networks to a larger audience. We should take advantage of our unique human ability to think, write, and communicate by sharing our opinions, knowledge, and writing. Just as the fragmentation of native habitat into isolated islands disrupts species interactions, composition, and persistence, the compartmentalization of people into isolated entities threatens our progress and future.

Bringing Back *Festuca paradoxa*, a Native Cool Season Grass, to the Midwest

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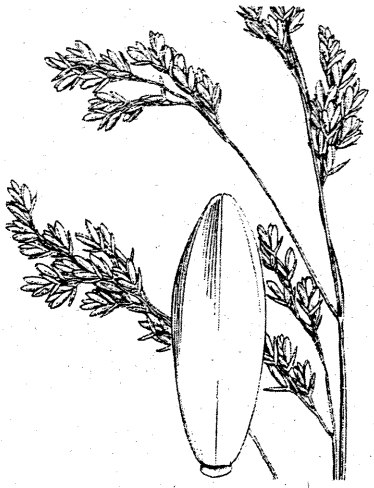

Festuca paradoxa Desv. is a little known native cool season grass with distribution in 23 states (Hitchcock 1971, Yatskievych 1999). It is endangered or of special concern in Indiana, Maryland, Pennsylvania, and Tennessee (Natural Resources Conservation Service 2002, A. Heikens, personal communication 2002). It grows under full sun in prairies and under moderate shade in forest openings and prairie draws (Hitchcock 1971, Mohlenbrock and Voight 1974, Yatskievych 1999). It is found scattered in one-third of the state of Missouri; however, during a two-year search in collaboration with the Missouri Department of Conservation's "Missouri Ecotype Program" only two conservation areas were identified where this grass grows in abundance.

Festuca paradoxa commonly known as cluster fescue or paradox grass, lacks rhizomes, has 10 to 40 cm long leaves, up to 1.2 m long panicles that droop at maturity (Kucera 1998, Yatskievych 1999). It flowers in May during the second growing season with seed maturing in early July. Seeds persist in panicles through the fall. Paradox grass reproduces readily from seeds and tillers. Seed germination varied from 55-70% for seed collected for three consecutive years from Tucker Prairie. Seeds were maintained at 60-68°F and grown in a soil medium in the greenhouse or on germination paper in growth chambers for up to 45 days. Seeds start germinating as early as 15 days after planting under 50°F and at day 21 under 60°F. Paradox grass can be confused with the common *Festuca subverticillata* Pers. (nodding grass). Common grass is mainly found in heavy shade in wooded stands. In addition, these two grasses differ in the shape of mature inflorescences and other external characteristics (Aiken and Lefkovitch 1993).

Unlike the non-native *F. arundinacea* Schreb. (tall fescue) that invades native herbaceous communities (Randall and Marinelli 1996), native fescues are not invasive. The replacement of native cool season grass in pastures or public areas where tall fescue is found has the potential to increase plant diversity and improve wildlife habitat. Studies are being done to determine if paradox grass can compete in the presence of a seed bank of tall fescue when planted in pastures. Rabinowitz et al. (1989) showed that paradox grass persisted for more than eight years when in competition with more common warm season grasses at Tucker Prairie. More recent studies suggest that paradox grass responds vigorously following summer burns with abundant seed production the following year (Mechlin 1999). In contrast, warm season grasses and other vegetation that grows in association with them favors spring burns. Other vegetation that grows in association with paradox grass include prairie junegrass (*Koeleria macrantha*), sweet coneflower (*Rudbeckia subtomentosa*), culvert's root (*Veronicastrum virginicum*), white wild indigo (*Baptisia alba*), rattlesnake master (*Eryngium yuccifolium*), knotroot foxtail (*Setaria parviflora*), downy gentian (*Gentiana puberulenta*), dropseed (*Sporobolus heterolepsis*), manna grass (*Glyceria striata*), and several sedges (*Carex* spp.).

Most of the grasses recommended for planting on public right-of-ways or on private lands for soil conservation or wildlife habitat are warm-season grasses or non- native cool season grasses (Missouri Department of Conservation 2001). The Missouri Deparment of Conservation's "Grow Native!" Program and the Missouri Department of Transportation would recommend paradox grass for roadside sites and for native plantings when seed becomes available commercially (J. Allmon, personal communication, Grow Native 2003). The addition of paradox grass and other native cool season grasses like river oats (*Chasmantium latifolium*), wildryes (*Elymus canadensis* and *E. virginica*), and prairie junegrass to seed mixes will introduce the native cool season grass component (L. Mechlin, personal communication) to provide additional cover and forage for wildlife in early spring and late fall.

Because paradox grass grows naturally under different shade levels, a two-year potted shade tolerance study was conducted at the University of Missouri. Paradox grass grew well and produced seed under moderate shade or full sunlight.

Bringing Back *Festuca paradoxa* (Continued from page 6)

Individuals and volunteer organizations familiar with this grass are helping to locate more populations in Missouri for seed collection. Seed production plots of paradox grass and other four native cool season grass are being established at the Horticulture and Agroforestry Center in New Franklin to test planting times, shade tolerance, fertilization regimes, and seeding rates on establishment, growth, persistence, and seed production. A private seed producer, using similar techniques to grow introduced fescues, will conduct an additional seed production study in Biehle, Missouri. Also, demonstration plots will be established at the University of Missouri's South Farm in Columbia to evaluate *F. paradoxa* as a turf grass. Other work includes the development of best management techniques in conservation areas and the evaluation of paradox grass as a forage species in pastures and as a companion crop in agroforestry practices. We expect that by 2004 recommendations on how to maximize seed production of this grass will be available for interested seed producers. If you want to learn more about this grass or help us finding more locations of this grass or other native cool season grasses in natural areas please send email to: navarreten@missouri.edu.

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Aiken, S. G. and L. P. Leptovitch. 1993. On the separation of two species within Festuca subg. Obtusae (Poaceae) Taxon. Journal of the International Association for Plant Taxonomy. 42(2): 323-337.

Aiken, S. G., M. J. Dallwitz, C. L. McJannet, and L. L. Consaul. 1996. Festuca of North America: Descriptions, Illustrations, Identification, and information retrieval. http://www.biodiversity.uno.edu/delta/festuca/www/descr044.htm.

Kucera, C. L. 1998. The Grasses of Missouri. University of Missouri Press. Columbia, Missouri. 305 p.

Mechlin, L. 1999. Project update. Assessment of a prairie restoration technique utilizing native prairie hay. Missouri Department of Conservation. http: //www.snr.missouri.edu/~rficklin/pf/mdc/mechlin/mechlinprogress99.html

Missouri Department of Conservation. 2001. Rich grasslands for Missouri landowners. MO Dept. of Conservation, Jefferson City, Missouri, 36 p.

Mohlenbrock, R. H. and J. W. Voigt. 1974. A flora of southern Illinois. Southern Illinois University Press. Carbondale, IL. 389 p.

Rabinowitz, D., J. K. Rapp, S. Cairns, and M. Mayer. 1989. The persistence of rare prairie grasses in Missouri: environmental variation buffered by reproductive output of sparse species. American Naturalist. 134(4):425-544.

Randall, J. M. and J. Marinelli. 1996. Invasive plants. Weeds of the global garden. Brooklyn Botanic Garden. Brooklyn, New York. 111 p.

Yatskievych G. 1999. Steyermark's Flora of Missouri. Vol. 1. Revised ed. Jefferson City, MO. MO Department of Conservation; p. 830-841.

Announcements

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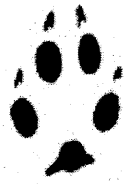

If you would like to help support MOSCB's activities and publication of *The Glade*, please send your contribution to MOSCB, care of Chrissy Howell, MOSCB Treasurer, Department of Biology, 223 Research Building, 8001 Natural Bridge Road, University of Missouri-St. Louis, St. Louis, MO 63121-4499. Suggested donations are $5 for students and $15 for other members. Thank you for your support!