

threatened based on the decline of threats, efforts taken to protect and conserve the species, and the discovery of new populations.

Peer Review

In accordance with our policy published in the **Federal Register** on July 1, 1994 (59 FR 34270), we sought the expert opinions of three appropriate and independent specialists regarding this proposed rule. The purpose of such review is to ensure that our decisions are based on scientifically sound data, assumptions, and analyses. We invited these peer reviewers to comment, during the public comment period, on the specific assumptions and conclusions regarding the proposed reclassification of *Lesquerella filiformis*. All of the three peer reviewers submitted comments that support the reclassification. We considered and incorporated, as appropriate, into this final rule all biological and commercial information obtained through the open comment period. Key issues raised in the comments are presented below.

Issue 1: Two reviewers commented that long-term monitoring is needed to assess population stability and viability across the range of the species.

Our response: As discussed above, we agree that long-term monitoring is essential to evaluate the rangewide status of the species. Although regular monitoring of Missouri bladderpod populations occurs on public lands, similar evaluations are needed on private land to assess the status of the species throughout its range. As recovery efforts for this species continue, we will continue to expand and refine the monitoring program, likely with a prioritized subset of populations.

Issue 2: Two reviewers expressed concern that the invasion of exotic brome grasses (*Bromus spp.*) and other non-native species threaten the long-term viability of Missouri bladderpod and suggested that research on this issue be conducted.

Our response: We acknowledge that the invasion of exotic species is a potential threat to *Lesquerella filiformis* and that additional research is needed to assess the extent of this threat. As discussed under the Factor A, *The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range* section below, although non-native species are now common on many areas where *Lesquerella filiformis* occurs, there is no solid evidence that these exotic grasses have eliminated populations of *Lesquerella filiformis*, especially in

areas that are regularly managed by techniques such as prescribed fire. We do agree that the control of exotics should be further evaluated using different control methods and that sites should be monitored to assess the spread of non-native species onto glade habitat. Such research and monitoring will continue as outlined in the Recovery Plan for the species (U.S. Fish and Wildlife Service 1988).

Issue 3: One reviewer was concerned that lack of management contributed to the degraded condition of many glades where the species is found, particularly on non-public lands.

Our response: As discussed under the Factor A, *The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range* section below, we believe that Missouri bladderpod responds favorably to various management activities (see Table 2). Missouri bladderpod responds positively to low to moderate disturbance, and has thus adapted to glades that may not be classified as high-quality habitats. Prescribed fire has been an effective tool in controlling the invasion of exotics and the encroachment onto glade habitat by native, woody vegetation. We do, believe, however, that the response of Missouri bladderpod to different management techniques should be further evaluated on both public and private land, and will continue this effort in implementing the recovery plan for this species.

Issue 4: One reviewer expressed concern that an effective management tool, prescribed burns, are often difficult to implement at the Nathan Boone State Historic Site in Greene County, MO.

Our Response: Although prescribed burns may be difficult to implement at that particular Missouri bladderpod site, this is not an issue at the sites with other significant populations. As recovery efforts for the species continue, we will explore other management methods that may work better at Nathan Boone State Historic Site.

Summary of Factors Affecting the Species

Section 4 of the Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for determining whether to add, reclassify, or remove a species from the List of Endangered and Threatened Plants using five factors described in section 4(a)(1). These factors and their application to *Lesquerella filiformis* Rollins (Missouri bladderpod) are as follows:

A. *The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

At the time of listing, *Lesquerella filiformis* was known to occur at only nine locations in Dade, Greene, and Christian Counties, MO. As described in the BACKGROUND section, surveys and research since that time have documented 63 extant sites. Currently, this species is known to occur at a total of 61 sites in 4 counties in Missouri and 2 sites in 2 counties in Arkansas. Of these, 30 have a TNC Nature Community Rank of A, B, or AB.

Taking into consideration annual fluctuations in population, the estimated total number of plants known in Missouri has increased from approximately 550 plants in 1980 (Morgan 1980) to a potential maximum of 400,000–500,000 plants when climatic and edaphic conditions are ideal for germination, overwinter survival, seedling establishment, growth, and seed production. Additionally, a maximum of “tens of thousands” of plants have been reported at the IZARD County, AR, site (Theo Witsell, *in litt.* 2002). Given that the two sites in Arkansas are separated by approximately 150 miles and are about 85–100 miles from the nearest location in southwestern Missouri, the possibility exists that additional populations of *Lesquerella filiformis* are yet to be discovered in southern Missouri and northern Arkansas, especially because the IZARD County, AR, site is partially dolomitic, a geological feature previously not targeted for surveys in Missouri.

In addition, the threat of habitat loss has been reduced by the acquisition and management of occupied sites by public land management agencies and TNC (Table 2). The MDC and TNC successfully protected one of the largest known sites, Rocky Barrens in Greene County, MO, by purchasing a total of 281 acres of occupied habitat during the period of 1988 to 1993. Another five sites in Missouri are under public ownership or a long-term conservation agreement, including approximately 29 acres at the Wilson’s Creek National Battlefield in Christian and Greene Counties; 3 acres at the Nathan Boone State Historic Site in Greene County; and approximately 40 acres at the Bois D’Arc Conservation Area in Greene County, an MDC property. Additionally, TNC has secured a 100-year lease to manage 47 acres of bladderpod habitat at South Greenfield Glade in Dade County, MO (Beth Churchwell, TNC, pers. comm. 2000).