

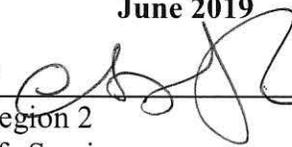
**Supplemental Finding for White Bladderpod (*Physaria (=Lesquerella) pallida*) Recovery Plan**

**Original Approved:** October 16, 1992

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**For  
U.S. Fish and Wildlife Service  
Southwest Region  
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**BACKGROUND INFORMATION**

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, “objective, measurable criteria which, when met, would result in a determination...that the species be removed from the list.” It is possible that for some species, however, delisting cannot be foreseen at the time a recovery plan is written. In some rare cases, the best available information is so seriously limited that it is truly not possible to identify delisting criteria. This would be an unusual case, such as one in which the species’ threats are not understood well enough to identify priorities and appropriate actions to remove (or offset) the threats. For example, the natural habitat may have been so reduced for an endangered species that captive propagation and active management is necessary for the life of a reasonable recovery plan. In another example, the population of a long-lived, slow growing species may be so depleted that possible recovery may be beyond the life of a reasonable recovery plan.

A 2006 Government Accountability Office (GAO) audit of the National Marine Fisheries Service’s (NMFS) and U.S. Fish and Wildlife Service’s (USFWS) endangered species recovery programs recommended that the Secretaries of the Department of Commerce and the Interior direct their staff to ensure that all new and revised recovery plans have either recovery criteria evidencing consideration of all five delisting factors or a statement regarding why it is impracticable to do so (GAO 2006). Since the 2006 GAO audit, we have updated our recovery planning and implementation guidance (NMFS and USFWS 2010), and new plans have included determinations regarding the feasibility or possibility of incorporating delisting criteria related to each of the five factors, as recommended by the GAO. However, active recovery plans remain, that lack delisting criteria and contain either an incomplete determination regarding the practicability of incorporating delisting criteria, or are silent about the absence of delisting criteria in the recovery plan. In this document, we clarify why it remains impracticable to

incorporate delisting criteria for white bladderpod in the White Bladderpod (*Physaria* (= *Lesquerella*) *pallida*) Recovery Plan (Recovery Plan).

## **METHODOLOGY USED TO COMPLETE THE FINDING**

Texas Coastal Ecological Services Field Office staff conducted this review incorporating information from the following: the proposed and final listing rules for the white bladderpod under the Endangered Species Act (68 FR 12184, 47 FR 7424); the Recovery Plan (USFWS 1992, entire); the species' 5-Year Review (USFWS 2014, entire); and other published and unpublished sources, as listed below.

## **FINDING**

The 1992 Recovery Plan includes only downlisting criteria. The goal of the Recovery Plan is to maintain adequate white bladderpod populations within its' natural habitat to insure that the species is safe from extinction (USFWS 1992, p. 10). White bladderpod will be considered for downlisting (i.e. reclassification from endangered to threatened) when 12 distinct self-sustaining populations are being maintained (USFWS 1992, p. 10). At the time of the 5-Year Review publication in 2014, ten wild populations and one introduction were documented (USFWS 2014, p. 4). Nine of the wild sites occur on private lands and the remaining tenth wild population occurs within a Texas Department of Transportation (TxDOT) highway right-of-way (ROW) (USFWS 2014, p. 4). The introduction was planted in 2009 on private land.

The Service did not define delisting criteria for the white bladderpod because of its restricted geographic distribution; a limited understanding of its life history and habitat requirements; and, the unknown magnitude and degree of threats (USFWS 1992, p. 10). Extant populations are all restricted to San Augustine County, Texas, with 10 of the 11 populations located on private lands. Reduced funding and staffing levels since the species listing in 1992 has resulted in a lack of repeated survey efforts. Landowners where two of the populations are located have restricted access to the sites, thus surveying has ceased (Element of Occurrences (EO) 4 and 5; USFWS 2014, p. 6); access to these sites has since only been granted in 2001. Efforts are currently underway by the Service to reengage with each landowner and land manager whose properties have extant white bladderpod populations to survey and to assess potential threats at each site. As part of this effort, the Service coordinated permission to access and survey for the presence and abundance of white bladderpod in Spring 2018, both at the TxDOT ROW population and the introduction site (neither has an EO number). These two sites were surveyed again in Spring 2019 along with populations known from EO records 1, 2, 6, 7, and 9. However, despite this current assessment information, the most comprehensive surveys to date remain to be from 2005-2006 (USFWS 2014, p. 4). Therefore, we lack sufficient data to understand and project the species' long-term viability trends and needs to define delisting criteria.

The Recovery Plan outlines recovery actions that, when completed, can help to achieve downlisting of the species and evaluate the impact of these actions on the species' recovery status. The 5-Year Review (2014, pp. 4-5) states that the majority of these actions are complete for all known populations however the lack of adequate surveys, loss of access to some sites/populations, and a lack of new biological studies since the Recovery Plan's publication date prompts review of each recovery action. Therefore, the Service considers many of these recovery actions as ongoing, incomplete, or with an unknown status including actions and sub-

actions 1, 2, 4, 6, 8, and 9 (USFWS 1992, pp. 10-16). For example, recovery actions 1 (Contact the landowners and land managers of all sites) and 2.3 (Develop simple but quantitative monitoring techniques to include in management plans) are not complete; several landowners with known records of white bladderpod populations have not been contacted, and therefore these sites have not been monitored in almost 20 years (USFWS 2014, p. 6). Due to the unknown nature of most of the recovery actions and the scant biological data available for the white bladderpod, delisting criteria cannot be defined until recovery actions are reevaluated and initiated, if necessary (USFWS 2014, p. 4).

A number of studies have been conducted elucidating some life history information and habitat requirements of the white bladderpod. Texas Parks and Wildlife Department (TPWD) received a Section 6 grant in 1992 to investigate the effects of shading, competition, grazing, fire, and other factors on the growth of white bladderpod (Warnock 1992), addressing recovery action 5 (USFWS 1992, p. 14). Turner (2001, in USFWS 2014, p. 5) identified new biological and life history information related to needed soil conditions, groundcover requirements, and pollinators. Member species of the genus *Physaria* and *Lesquerella* have been studied for their commercial use due to their high hydroxyl fatty acid content (Dierig *et al.* 1996, Dierig *et al.* 2004, Salywon *et al.* 2005). In 1998, The Nature Conservancy (TNC) of Texas and the Service signed a conservation agreement (agreement number 1448-20181-98-G943) to support years of surveys, collect seed, map the habitat, provide landowner assistance, and complete a habitat specific conservation plan for the Weches Glades within San Augustine County, Texas. In 2003, this plan known as the Conservation Area Plan for the San Augustine Glades, was developed by TNC and included planning members from the Service, Mercer Arboretum and Nature Center, Pineywoods Native Plant Center, Stephen F. Austin State University, and TPWD. The purpose of the plan is to provide guidance for the conservation and restoration of a network of ecologically functional forests and glades along the Weches Geologic Formation, including specific conservation goals and strategies for the white bladderpod and another Weches glade endemic plant species, the *Leavenworthia texana* (2003, pp. 12-14). However, progress on meeting each conservation strategy has not been tracked and each strategy's status is currently unknown. Although the abovementioned studies have been informative and increased our general knowledge about the species, the recovery actions and management strategies for the species have not been fully implemented. Research and additional efforts needed include contacting the landowners, surveying existing populations, developing and implementing site-specific management plans (including the Conservation Area Plan), developing monitoring techniques, establishing binding stewardship agreements, establishing suitable sites for reintroduction, and developing an education program.

We lack information about the immediacy and extent of threats. The best available information indicates that the primary threats to the white bladderpod stem from destruction, modification, and curtailment of habitat and range. Historically, farming and grazing were the dominate land use practices in San Augustine County and were considered the predominate threat to white bladderpod and its habitat (USFWS 1992; TNC 2003, p. 9; USFWS 2014, p. 13). These land use practices remain as the primary threat, confirmed through recent survey efforts by the Service in April 2019. Farming and grazing can lead to the encroachment of undesirable vegetation into outcrop habitat, trampling of plants by cattle, and a limitation of potential recruitment of new individuals to populations (USFWS 2013, p. 56051; USFWS 2014, p. 13). We expect these

practices to continue into the future within the geographic range of the white bladderpod. Oil and gas development also diminishes habitat quality and quantity through direct loss of habitat, introduction of nonnative species into modified areas of habitat, and an altered site hydrology. Pipeline and well pad construction will continue to be a threat to the species as the demands for oil and gas production within the county continue. Other threats could include climate change. White bladderpod is known from a single county known for its climatic extremes of temperature and precipitation (TNC 2003, ii; Diggs *et al.* 2006, p. 80) and native flora are well adapted to the region. White bladderpod is an edaphic (soil) specialist, restricted to soils with alkaline sediments with unique mineral and water retention properties described as seepy and saturated during the cool moist winter and spring months and dry during the summer (USFWS 1992, p. 4). These features may restrict the plant's capacity to spatially shift into surrounding habitat in response to a changing climate (USFWS 2014, p. 15). Warnock (1992) documented the effects of its restricted nature with a high variability in population counts, attributing fluctuations to early year frosts and dry springs. The localized effects of climate change on white bladderpod are unknown, however The Intergovernmental Panel on Climate Change (2014, p. 26) projects that temperatures and the intensity and duration of heat waves will increase, which could make these populations less stable and persistent into the future. Therefore, we anticipate that effects from climate change could have an impact on the white bladderpod.

Priority recovery actions include communicating with landowners and land managers; requesting access to their property (recovery actions 1, 1.2); and, continuing to monitor and survey extant and search for new white bladderpod populations (recovery actions 2.3, 3, 6) (USFWS 2014, p. 16; USFWS 1992, pp. 11, 12). Because 10 of the 11 known populations are located on private lands, it is essential to engage landowners and land managers to encourage collaboration; additional time to coordinate with landowners and land managers to gain access to known populations, document potential unknown populations, and conduct surveys to collect necessary biological data is needed. Repeated monitoring data from most, if not all sites, is needed to assess the species' viability at each site and across its' range. Despite recent progress reengaging with landowners, sufficient biological data to evaluate species needs and threats throughout its range to develop informed delisting criteria are lacking.

### **Development of Quantifiable Delisting Criteria “Not Practicable” Finding**

The 1992 Recovery Plan does not include delisting criteria. The goal of the Recovery Plan is to maintain adequate white bladderpod populations within its' natural habitat to insure that the species is safe from extinction (USFWS 1992, p. 10). This goal has not been met. The white bladderpod faces multiple imminent threats, and its range is limited to small areas mostly on private property. Without landowner and land manager cooperation and conservation, complete loss of white bladderpod in the wild could occur. In addition, suitable areas available where white bladderpod populations can be established outside of private property are most likely nonexistent because of its' biological nature as a very narrow habitat specialist and because of the extensive amount of privately owned land in Texas. Habitat loss and destruction remain the primary threat to the species survival and are not sufficiently mitigated. Such measures will rely on cooperation with private landowners and managers.

Therefore, due to the extreme limited range of the species, unmitigated current and future threats to survival, and lack of known suitable and available habitats that this species could be

introduced into, the development of meaningful quantifiable delisting recovery criteria is not practicable at this time.

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