

Lyrate Bladderpod
(*Paysonia* (= *Lesquerella*) *lyrata*)

5-Year Status Review:
Summary and Evaluation



Photo credit: Kevin England

U.S. Fish and Wildlife Service
Southeast Region
Alabama Ecological Services Field Office
Daphne, Alabama

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5-YEAR STATUS REVIEW
Lyrate Bladderpod (*Paysonia* (= *Lesquerella*) *lyrata*)

GENERAL INFORMATION

Current classification: Threatened

Lead Field Office: Alabama Ecological Services Field Office, Daphne, Alabama

Review Author: Erin Lentz, Alabama Ecological Services Field Office

Reviewers:

Lead Regional Office: Southeast Region, Carrie Straight

Date of original listing: October 29, 1990 ([55 FR 39864](#), September 28, 1990)

Methodology used to complete the review:

In accordance with section 4(c)(2) of the Endangered Species Act of 1973, as amended (Act), the purpose of a status review is to assess each threatened species or endangered species to determine whether its status has changed and if it should be classified differently or removed from the Lists of Threatened and Endangered Wildlife and Plants ([50 CFR 424.11](#)). The U.S. Fish and Wildlife Service (Service) evaluated the biology, habitat, and threats of the lyrate bladderpod to inform this status review.

We announced initiation of this review in the Federal Register on May 11, 2023 ([88 FR 30324](#)) with a 60-day comment period and received no comments. The primary sources of information used in this analysis were the 1990 final listing rule ([55 FR 39864](#)), the 1996 recovery plan, 2009 and 2019 5-year reviews, peer-reviewed scientific literature, unpublished survey data and reports, and personal communication with recognized experts. This review was completed by the U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office, Daphne, Alabama. All literature and documents used for this review are on file at the Field Office. All recommendations resulting from this review are the result of thoroughly reviewing the best available information on the lyrate bladderpod.

FR Notice citation announcing the species is under active review: May 11, 2023 ([88 FR 30324](#))

Species' Recovery Priority Number at start of 5-year review ([48 FR 43098](#)): 8, indicating that the listed entity is a species with a moderate degree of threat and high recovery potential.

Review history: Previous 5-year reviews recommending no change in status were signed on April 8, 2009 (Service 2009) and September 26, 2019 (Service 2019).

REVIEW ANALYSIS

Listed Entity

Taxonomy and nomenclature

An analysis of the genetics of this species, resulted in a change to the species' genus from *Lesquerella lyrata* to *Paysonia lyrata*. Details of this taxonomic change are given in O'Kane and Al-Shehbaz (2002), which has been accepted by various authorities, including the Integrated Taxonomic Information System (2011), the International Plant Names Index (2023), the Plants of the World Online (2024), and the Flora of the Southeastern United States (Weakley 2024). This updated nomenclature does not impact our assessment of the listed entity, and it is still considered a valid entity by the Service. Until we finalize a technical correction of the name, we will continue to reference the species using the name as it was listed, *Lesquerella lyrata*.

Distinct Population Segment (DPS) ([61 FR 4722](#))

The Act defines species as including any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate wildlife. This definition limits listing of a DPS to only vertebrate species. Because the species under review is a not a vertebrate, the DPS policy does not apply.

Recovery Criteria

Recovery Plan or Outline

Recovery plan for the lyrate bladderpod (*Lesquerella lyrata* Rollngs), October 17, 1996.

Recovery plans are not regulatory documents and intended to provide guidance to the Service, States, and other partners on methods of minimizing threats to listed species and on criteria that may be used to determine when recovery is achieved. If the recovery criteria defined in the plan are still valid, meeting recovery criteria can indicate that the species no longer requires protections under the Act. However, when recommending whether a listed species should be delisted, the Service must apply the factors in section 4(a) of the Act ([84 FR 45020](#)).

“*Lesquerella lyrata* may be considered for delisting when nine demonstrably secure and self-sustaining populations exist. A demonstrably secure population is defined as one for which legal protection and active, successful management have been established. A self-sustaining population is defined as a population that is shown by monitoring data to be reproducing and relatively stable for at least a 10-year period. The existence of nine such populations (three populations for each extant genetic group) should provide a sufficient buffer against unforeseeable losses of populations” (Service 1996).

The Service believes these criteria are appropriate and relevant; however, no criteria have currently been met.

Biology and Habitat Summary

Detailed reviews of lyrate bladderpod's biology and habitat can be found in previous 5-year reviews (Service 2009; Service 2019). A summary of the species current condition is provided below. Lyrate bladderpod's range, including counties with known populations is depicted by the red circles in Figure 1.

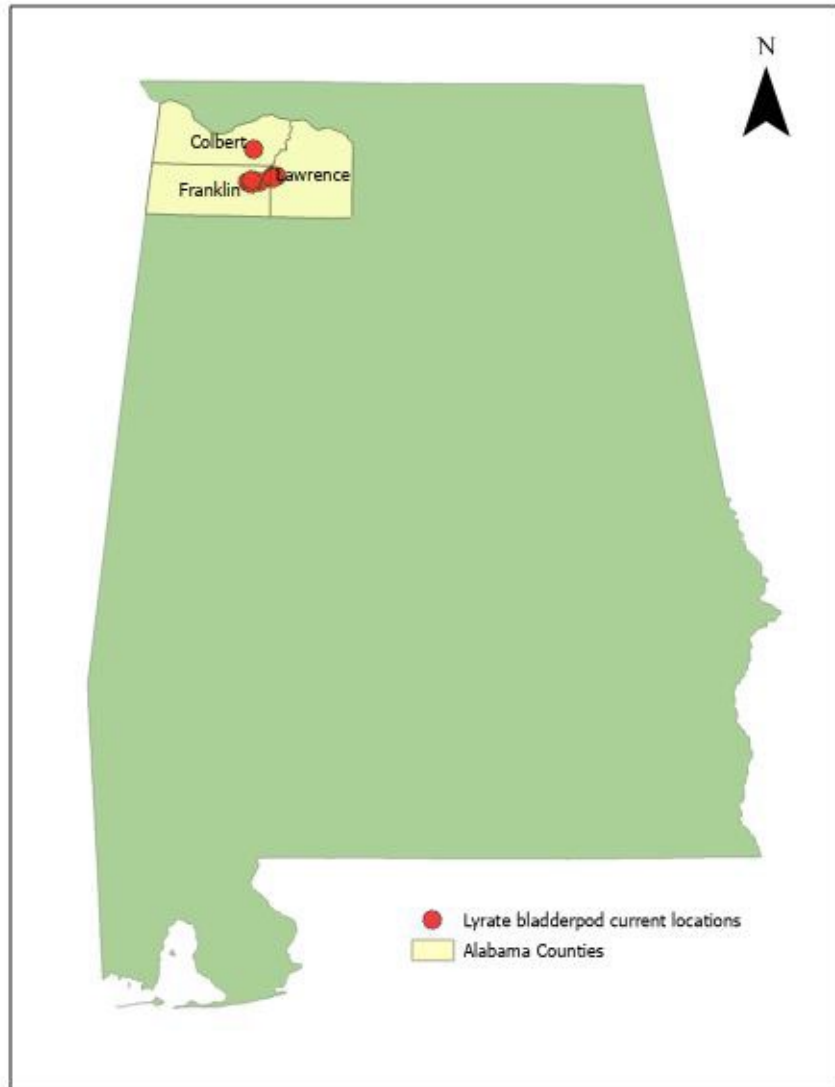


Figure 1: Distribution of lyrate bladderpod.

Currently, only three populations are known to exist for this species, with one each in Colbert, Franklin, and Lawrence counties, Alabama. Several historical sites within these counties were observed in areas that are now pastureland or support woody vegetation and plants have not been seen since the 1990s (Webb 2023, pers. comm.). Lyrate bladderpod is an annual plant species that can occur in disturbed habitats, such as pastures if properly managed (heavy cattle grazing and/or herbicide use may damage or kill species). Its populations can vary widely from year to year because individual numbers at sites differ dramatically depending upon environmental factors and previous ground disturbance at the site.

Colbert County: In Colbert County, there is one population with plants occurring on three different properties (Webb 2022, pers. comm.). The largest site was previously located in an agricultural field, but plants were sprayed with herbicide prior to seed set in 2021. Subsequent visits to this site in 2022 and 2023 have not relocated plants (Webb 2023, pers. comm.) and the population may have been extirpated but this needs to be confirmed with follow-up visits. The second site occurs on private property that has been developed and is subject to lawn

maintenance (Webb 2023, pers. comm.). The third site is small (100-200 plants) and in an area that is periodically mowed (Webb 2023, pers. comm.). Mowing can negatively impact the population if not done properly. If the site is mowed after the seeds have dispersed, typically in late April or May, the population will likely be able to reproduce the next season.

Franklin County: In Franklin County, there is one population with plants occurring at two sites. The plants at these sites primarily grow in limestone gravel along roadsides adjacent to glade areas and average a total of 300 to 400 plants (Webb 2022, pers. comm.). These estimates have been comparable the past several years but are declining overall despite the short-term stability due to the growth of woody vegetation along the roadside (Webb 2023, pers. comm.; Schotz 2024, pers. comm.). This population is greatly influenced by the maintenance practices of the Alabama Highway Department and/or the county highway department (Webb 2023, pers. comm.). If mowing or herbicide use occurs before seeds set, maintenance activities could negatively impact those populations that occur on roadsides.

Lawrence County: The largest population range-wide occurs in Lawrence County on three different properties. The first site is the only protected site and has thousands of plants over seven acres on The Nature Conservancy Prairie Grove Glades Preserve. The Service worked with The Nature Conservancy to purchase an additional 25-acres adjacent to the Preserve in 2022. This additional property provides a water source for the cattle that graze on the Preserve and help keep the lyrate bladderpod population thriving (Northcutt 2022, pers. comm.).

Several thousand more plants occurred on a nine-acre site (second site) adjacent to the Preserve, which used to be under a Wildlife Cooperative Extension Agreement through the Service (Service 2019; Hurt 2024, pers. comm.); however, this agreement expired in 2017 and the property has since been sold. The Service has discussed establishing a new agreement with the new landowner (Hurt 2024, pers. comm.).

The third site was discovered this year (2024) on private property in Lawrence County. The site has been in row crop for the past several years (Summerford 2024, pers. comm.). There is a cedar glade on the property that the new owner has burned and is actively managing to try to expand the footprint (Summerford 2024, pers. comm.).

Table 1. County distributions of lyrate bladderpod populations (extant and protected).

State	County	Number of Extant Populations	Number of Protected Populations
Alabama	Colbert	1	0
	Franklin	1	0
	Lawrence	1	1
Total Populations		3	1

Threats (Five-Factor Analysis) Summary

The status of a species is determined from an assessment of factors specified in section 4(a)(1) of the Act. A summary of this assessment is detailed below.

Factor A: the present or threatened destruction, modification, or curtailment of its habitat or range: Destruction, modification, or curtailment of habitat or range remains the most persistent threat to lyrate bladderpod. Most cedar glades have experienced human disturbances, including those glades that naturally supported lyrate bladderpod populations (Webb and Kral 1986; McDaniel 1987; Service 1990, 1996; Hilton 1997, 2000). Cedar glades in Alabama as well

as others across the southeastern U.S., have been fragmented by agriculture and development over the years, and today, exist mostly as remnants. Housing development, trash dumping, adverse agricultural practices, and road building have destroyed or negatively impacted a number of cedar glade systems, including those associated with the lyrate bladderpod. As discussed in the 2009 review, populations in Franklin and Colbert counties are located near growing urban areas which may increase incompatible land use practices (Service 2009).

Factor B: overutilization for commercial, recreational, scientific, or educational purposes: Overutilization for commercial, recreational, scientific, or educational purposes does not pose a significant threat to the species.

Factor C: disease or predation: There is no indication that disease or predation poses a significant threat to the species.

Factor D: the inadequacy of existing regulatory mechanisms: There are no State laws in Alabama protecting the lyrate bladderpod or its habitat. The largest known population is located and protected on lands owned and managed by The Nature Conservancy. The federal Endangered Species Act does not provide protection for listed plant species unless the plant occurs on Federal lands or protects plants when the activity is in violation of a state law when on private lands. Therefore, activities on private lands typically are not regulated. These limitations indicate that current regulatory mechanisms are not sufficient to protect the species from threats.

Factor E: other natural or manmade factors affecting its continued existence: Other natural or manmade factors continue to threaten lyrate bladderpod. Of particular concern, most of the species' populations are small—supporting a few hundred plants or less—which increases the susceptibility of these populations to demographic and stochastic processes (Webb 2023, pers. comm.). Isolation of populations and habitat fragmentation within the species' range exacerbates the potential deleterious consequences of small population sizes. As noted in the previous 5-year review, encroachment of competing perennials and invasives such as fescue, remains a persistent challenge and these sites need active management to improve habitat conditions and maintain the populations (Service 2019; Webb 2023, pers. comm.). Lyrate bladderpod is also a popular browse material for deer and invertebrates, but this is not a major concern at this time.

Synthesis

Lyrate bladderpod is a winter annual herb endemic to cedar glade areas in northern Alabama. Most glades have been unable to escape human disturbances, including those glades that continue to naturally support populations of the lyrate bladderpod. The species is limited to three populations in three counties in northwest Alabama. Two of the three populations are not protected and appear to be declining. The unprotected populations are located on disturbed remnants of cedar glades. Cedar glades have been fragmented by agriculture and development and mostly exist as remnants today. Housing development, trash dumping, adverse agricultural practices, and road building have destroyed or negatively impacted a number of cedar glade systems, including some associated with the lyrate bladderpod. Populations in Franklin and Colbert counties are located near growing urban areas and residential development poses a threat to both sites. Plants extend onto roadsides at several sites and mowing or herbicide application prior to seed set have and will continue to negatively impact these populations. In the absence of natural ground disturbing activities (e.g., fire and animal grazing) that prevent success of habitat to incompatible woody vegetation, the lyrate bladderpod requires some form of human ground

disturbance to assist with plant maturity. Certain agricultural practices can provide the disturbances beneficial to the species and its habitat. At the time of this species' listing in 1990, a large number of plants were observed in cultivated fields; however, most of these areas are no longer cultivated, and several sites today are located in pasturelands. For example, the population in Lawrence County, located in pastureland, which is lightly grazed outside the growing season, is thriving; however, remaining populations have shown declines in numbers due to field abandonment, lack of habitat management, and protection from threats. Because of ongoing threats, current condition of the species, and lack of robust, protected populations, lyrate bladderpod continues to meet the definition of a threatened species.

RECOMMENDED FUTURE ACTIVITIES

A detailed discussion of recovery actions and criteria are presented in the Recovery Plan (Service 1996). In the course of this status review new and/or targeted potential recovery activities were identified and are included below.

These activities are recommended to support and promote recovery of lyrate bladderpod.

Recovery Activities

- Pursue protection of currently unprotected populations.
 - Work to renew landowner agreement for property adjacent to Prairie Grove Glade Preserve.
 - Work to renew contact with State and county highway departments to ensure proper protective measures are implemented for those areas where plants occur within roadside rights-of-way.
- Conduct habitat management to control competing vegetation and promote population growth.
- Work with landowners to reintroduce some type of ground disturbance activity at historical sites during appropriate time of year and follow with survey of sites next flowering season.
- Continue surveys to locate additional populations.
- Work with cooperators to expand *ex situ* (off-site) preservation of genetic material and produce plants for potential outplantings.
- Create a management manual for landowners, farmers, and the local transportation departments.

Monitoring and Research Activities

- Gather baseline data on all populations and implement consistent and long-term monitoring of all populations to track population trends and evaluate management efforts.
- Study efficacy and optimal application of various habitat management practices (e.g., mowing, herbicide, prescribed fire).
- Define self-sustaining population.

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RESULTS / SIGNATURES

U.S. Fish and Wildlife Service Status Review of Lyrate Bladderpod

Status Recommendation:

On the basis of this review, we recommend the following status for this species. A 5-year review presents a recommendation of the species status. Any change to the status requires a separate rulemaking process that includes public review and comment, as defined in the Act.

- Uplist to Endangered
- Delist:
 - The species is extinct*
 - The species does not meet the definition of an endangered or threatened species*
 - The listed entity does not meet the statutory definition of a species*
- No change needed

FIELD OFFICE APPROVAL:

William J. Pearson,

Field Supervisor, Alabama Ecological Services Field Office, Fish and Wildlife Service

Approve _____