Highlands Scrub Hypericum
(Hypericum cumulicola)

5-Year Status Review:
Summary and Evaluation

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U.S. Fish and Wildlife Service
Southeast Region
Florida Ecological Services Field Office
Vero Beach, Florida

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5-YEAR STATUS REVIEW
Highlands scrub hypericum (*Hypericum cumulicola*)

GENERAL INFORMATION

Current Classification: Endangered

Lead Field Office: Florida Ecological Services Field Office, Emily Bauer, (772)-226-8133

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Date of original listing: February 20, 1987 (Effective Date); January 21, 1987 (52 FR 2227, Publication Date)

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 best available information about Highland scrub hypericum's biology, habitat, and threats to inform this status review. We announced initiation of this review in the Federal Register on June 6, 2024 (89 FR 48437), with a 60-day comment period and received no comments. The primary sources of information used in this analysis were the 1987 final listing rule (52 FR 2227), the 1999 recovery plan, peer-reviewed reports, agency reports, unpublished survey data and reports, and personal communication with recognized experts. This review was completed by the Service's Florida Ecological Services Field Office, Vero Beach, Florida. 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 Highlands scrub hypericum, along with information and data received from state agencies.

FR Notice citation announcing the species is under active review: June 6, 2024 (89 FR 48437)

Species' Recovery Priority Number at the start of the 5-year review (48 FR 43098): 2. Highlands scrub hypericum is a species with a high degree of threat and a high recovery potential.

Review History: Previous 5-year reviews that recommended no status change were published on September 5, 2010 (Service 2010), and March 15, 2021 (Service 2020).

REVIEW ANALYSIS

Listed Entity

Taxonomy and nomenclature

We are not aware of any changes to the taxonomy of this entity, and it is still considered valid by the Service and the Integrated Taxonomic Information System (2025).

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

South Florida Multi-Species Recovery Plan; May 18, 1999 (Service 1999)
Lake Wales Ridge Plants Recovery Plan Amendment; September 27, 2019 (Service 2019)

Preceding iterations:
Recovery Plan for Nineteen Florida Scrub and High Pineland Plant Species; June 20, 1996 (Service 1996)
Recovery Plan for Eleven Florida Scrub Plant Species; January 29, 1990 (Service 1990)

Recovery plans are not regulatory documents and are 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).

Highlands scrub hypericum will be considered for delisting when: 1) at least 20 populations exhibit a stable or increasing trend, evidenced by natural recruitment and multiple age classes; 2) populations (as defined in criterion 1) in rosemary scrub habitats are distributed across the known range of the species; and 3) populations are protected and managed via a conservation mechanism to a degree that enough suitable habitat is present for the species to remain viable for the foreseeable future.

Currently, there are not sufficient data on 20 populations to classify trends, determine natural recruitment levels, or quantify age classes. To determine age classes directly, individual plants will need to be followed from seedlings onward. In general, the criterion to have populations distributed across the range of the species has largely been satisfied, with protected populations found throughout the species range on the Lake Wales Ridge.

Biology and Habitat Summary

A detailed review of the species biology and habitat information can be found in the listing rule (52 FR 2227; Service 1987), Recovery Plan and amendment (Service 1999, 2019), and previous 5-year review (Service 2021). Highlands scrub hypericum is a diminutive, short-lived, perennial herb. It generally is found in rosemary scrub or dry scrubby flatwoods (and along roadsides on similar soils; Quintana-Ascencio et al. 2007) with fire return intervals from 5 to 30 years (Menges 2007). It is a specialist for gaps and for recently burned areas (Quintana-Ascencio et al. 2003; Menges et al. 2017) with well-drained white sands (Judd 1980; Menges et al. 2007). It is more likely to occur in larger and less isolated patches, probably because of dispersal limitations. A persistent seed bank varies with time since fire and allows for dormancy and delayed germination for up to three years (Navarra et al. 2011). Highlands scrub hypericum is dependent on arbuscular mycorrhizal fungi to help it garner nutrients. In addition, biological soil crusts fix nitrogen from the atmosphere, which is taken up by nearby plants, including Highlands scrub hypericum (Hawkes 2003).

Florida Natural Areas Inventory (FNAI; 2025) reported 37 extant populations (this excludes 3 extirpated occurrences) of Highlands scrub hypericum; however, 17 (46 percent) of these populations have not been observed in over three decades. Highlands scrub hypericum occurs on protected lands at 19 (51 percent) of the reported populations, many of which are large populations with active fire management programs. FNAI (2025) also ranked the estimated viability of the reported populations based on size and condition of the population and the condition of the surrounding landscape. Of the 21 populations that were assigned a viability ranking, 19 (90 percent) had an estimated viability from fair to excellent. In comparison, the previous 5-year review (Service 2021) reported 39 extant populations (including 1 population not located), 22 of which occurred on protected lands.

In 2023, level 3 monitoring at Lake Wales Ridge State Forest found 6.6 percent overall plant survival (Florida Department of Agriculture and Consumer Services [FDACS] 2023). While this is lower than results from 2020, Highlands scrub hypericum is a relatively short-lived species, and this survival rate is not an outlier among that data collected since demographic monitoring began in 1996. In general, the survival of plants at Lake Wales Ridge State Forest significantly increased in 2010 and then drastically decreased in 2014 (FDACS 2023). While more investigation is needed to determine the reason for this significant swing in survival, the species is known to respond positively post-disturbance.

We are not aware of any additional new biology or habitat information since the most recent species review that impacts the status of the species, and all of information provided in the last 5-year review remains valid (Service 2021).

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, including: Factor A: the present or threatened destruction, modification, or curtailment of its habitat or range; Factor B: overutilization for commercial, recreational, scientific, or educational purposes; Factor C: disease or predation; Factor D: the inadequacy of existing

regulatory mechanisms; Factor E: other natural or manmade factors affecting its continued existence. A summary of this assessment is detailed below.

Factor A (Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range): As identified in the previous 5-year review (Service 2021), habitat loss through development and land conversion, inadequate fire management, and non-native plant species continue to remain threats for Highlands scrub hypericum throughout its range. Development and land conversion are especially likely on private or non-protected lands (Carr and Zwick 2016), and even on protected lands, Highlands scrub hypericum may be threatened by habitat modifications due to inappropriate fire regimes.

Factor B (Overutilization for Commercial, Recreational, Scientific, or Educational Purposes): We have no indication that overutilization for commercial, recreational, scientific, or educational purposes poses a significant threat for the species.

Factor C (Disease or Predation): We have no information on disease affecting Highlands scrub hypericum. Researchers have reported herbivory for this species (Brudvig and Quintana-Ascencio 2003), but there is no indication that it has a strong impact on population dynamics.

Factor D (The Inadequacy of Existing Regulatory Mechanisms): Highlands scrub hypericum is listed as endangered by the State of Florida on the Regulated Plant Index (FDACS Rule 5B-40). This law regulates the taking, transport, and sale of listed plants. However, property owners are not prohibited from destroying populations of listed plants nor are they required to manage habitats to maintain populations. In conclusion, there are no existing regulatory measures that reduce or remove the threat of loss of populations or removal/destruction of plants on private property and existing regulatory mechanisms are inadequate to protect this species.

Factor E (Other Natural or Manmade Factor Affecting its Continued Existence): As discussed in the last 5-year review (Service 2021), trampling; few, small, fragmented populations in a limited geographic range; and climate change factors are stressors for Highlands scrub hypericum. Trampling by vehicles or other disturbance could alter soil crusts that are known to increase germination rates (Hawkes 2004; David et al. 2019). The limited geographic range of Highlands scrub hypericum, in combination with the loss of habitat, has resulted in a highly fragmented landscape where the remaining scrub areas that provide habitat for the species have become more isolated from each other, thereby making adequate resiliency, redundancy, and representation more challenging to achieve. Climate change factors, including increased average annual temperatures, changes in precipitation patterns, severity of tropical storms and hurricanes, and sea-level rise, are anticipated to alter habitat conditions throughout the Highlands scrub hypericum's range (Runkle et al. 2022; Sweet et al. 2022). Higher temperatures and changes in precipitation patterns could alter relative humidity levels and evapotranspiration rates, leading to the potential for more frequent and intense droughts and wildfire events. Scrub species, in general, can tolerate drought conditions, but it is unclear how this threat will fully affect species like Highlands scrub hypericum. Although direct impacts from sea-level rise are unlikely in the Central Florida ridges, sea-level rise in coastal and low-lying areas is likely to increase the threat of development in higher elevation, inland areas where this species occurs.

Synthesis

Highlands scrub hypericum is protected at 19 sites (down from 22 sites reported in 2021), often with large population sizes and active fire management. However, remaining unprotected populations are in imminent danger of decline and extirpation. Unprotected habitat continues to be developed for agriculture, housing, and other uses. This is likely reducing the number and size of populations of this species. In addition, on managed areas that include the protected occurrences, better land management is needed to ensure that protected populations remain extant. Appropriate management includes avoiding fire suppression, avoiding fires before forecasted droughts, creating of gaps, and avoiding damage by trampling to plants and the soil crusts that are important for germination. Although there is active fire management at many sites, inappropriate fire regimes remain a significant threat. Most scrub sites supporting Highlands scrub hypericum are not burned frequently enough to support viable populations, and mechanical pre-treatments or surrogates may not provide the same benefits as fire. Few, small, fragmented populations in a limited geographic range present additional risk for the species. These factors, in conjunction with the species' limited dispersal potential, hinder population resiliency and ultimately recovery. Anticipated climate change factors such as alterations to temperature patterns, tropical storm intensity, and sea-level risk will only exacerbate these threats. Due to these ongoing threats mentioned above, this species continues to meet the definition of endangered under the Act.

RECOMMENDATIONS FOR FUTURE ACTIONS

- Develop land management plans that address the following threats to Highlands scrub hypericum: avoiding fire suppression, avoiding fires occurring before forecast droughts, creation of gaps, avoiding disturbances from vehicles, and avoid trampling of Highlands scrub hypericum and the cryptobiotic soil crust that facilitates seedling emergence.
- Collect data on the response of Highlands scrub hypericum to management activities such as roller chopping, mowing, gyro-tracking, logging, and chain-saw felling. Adjust fire-based population viability models based on the species' response to management techniques.
- Develop a metapopulation model using information on population dynamics within populations, the number and distribution of populations, and dispersal among populations (for plants, mainly seed dispersal) to determine the number of self-sustaining populations needed to ensure persistence.
- Study seed dispersal among populations of Highlands scrub hypericum for use in a metapopulation model.
- Conduct quantitative level 2 surveys (counting individuals in defined areas) at additional sites outside of Archbold Biological Station and the Lake Wales Ridge State Forest. Surveys should track changes in population sizes over time and in response to management treatments.
- Purchase land or develop conservation easements to protect and manage unprotected populations.
- Confirm and update FNAI occurrence records for Highlands scrub hypericum rangewide through surveys or other observation information, with emphasis on unprotected sites that have not received routine fire management.

- Targeted collection of Highlands scrub hypericum from unprotected sites for *ex situ* conservation. Highlands scrub hypericum currently has limited protection in cryogenic storage, with 32,012 seeds collected from one population in 1988 and 1990. No Highlands scrub hypericum have been in the Bok Tower Gardens' living collection since the early 2000s (Peterson 2025, pers. comm.).

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U.S. Fish and Wildlife Service
Status Review of Highlands Scrub Hypericum (*Hypericum cumulicola*)

Status Recommendation: On the basis of this review, we recommend the following status for this species (50 CFR § 424.11). 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.

__X__ No change needed

FIELD OFFICE APPROVAL:

Acting Division Manager, Florida Ecological Services Field Office, U.S. Fish and Wildlife Service

Approve NICOLE COLANGELO Digitally signed by NICOLE COLANGELO Date: 2025.07.02 11:43:14 -04'00' Date 7/2/2025

* In the Florida Ecological Services Field Office, the Classification and Recovery Division Manager has delegated authority to approve 5-year reviews that do not recommend a status change.