

Scrub Plum
(*Prunus geniculata*)

5-Year Status Review
Summary and Evaluation



Lake McLeod National Wildlife Refuge, Polk County. Photo Todd Mecklenborg

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

May 2023

STATUS REVIEW

Scrub Plum (*Prunus geniculata*)

GENERAL INFORMATION

Current Classification: Endangered

Lead Field Office: Florida Ecological Services Field Office (FESFO), Todd Mecklenborg
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Reviewers:

Lead Regional Office: Southeast Region, Carrie Straight, (404) 679-7226

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Date of original listing: January 21, 1987 (52 FR 2227)

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 scrub plum (*Prunus geniculata*) to inform this status review.

We announced initiation of this review in the Federal Register on May 13, 2022 (87 FR 29364) with a 60-day comment period. We did not receive any public comments related to this species during the comment period. The primary sources of information used in this analysis were the 1987 final listing rule (52 FR 2227), the *Recovery Plan for Nineteen Florida Scrub and High Pineland Plant Species* (1996), *South Florida Multi-Species Recovery Plan* (1999), previous 5-year reviews, research project reports, peer reviewed scientific publications, unpublished field observations, and personal communications. This review was completed by the Service's FESFO, Gainesville, Florida. All literature and documents used for this review are on file. All recommendations resulting from this review are the result of thoroughly reviewing the best available information on *P. geniculata*.

FR Notice citation announcing the species is under active review: May 13, 2022 (87 FR 29364)

Species' Recovery Priority Number at start of 5-year review ([48 FR 43098](#)): 2. The "2" indicates a species with a high degree of threat and high recovery potential.

Review History: Previous 5-year reviews were completed in 1991, 2009, 2017, all of which recommended no change in status.

REVIEW ANALYSIS

Listed Entity

Taxonomy and nomenclature

The taxonomy of the listed entity is still valid (Integrated Taxonomic Information System 2023). The species is currently identified as *Prunus geniculata* - R.M. Harper - Scrub Plum. We are unaware of any taxonomic issues with this species.

Distinct Population Segment (DPS)

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

Recovery Criteria

Recovery Plans

Prunus geniculata is included in the following Recovery Plans:

- Recovery Plan for Nineteen Florida Scrub and High Pineland Plant Species, June 20, 1996,
- South Florida Multi-Species Recovery Plan (identifies recovery contributions for the South Florida Ecological Service's Field Office area of responsibility), May 18, 1999.

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](#)).

Recovery Plan for Nineteen Florida Scrub and High Pineland Plant Species

The plan identified *P. geniculata* as a relatively widespread species with the main threat of habitat loss or degradation. Reclassification and/or delisting was considered feasible with additional habitat protection and demographic monitoring and criteria were defined as:

Reclassify from endangered to threatened: 8 populations occur at 4 sites, with at least 10 years of demographic monitoring at least at one site (and monitoring established at all sites). Sites must be protected in Highlands, Polk, and Lake counties.

To delist this species would require 20 populations at 5 sites, with 10 further years of monitoring.

Currently, neither downlisting (reclassification) or delisting criteria have been met.

South Florida Multi-Species Recovery Plan

Although the South Florida Recovery Plan (1999) does not identify new recovery criteria for *P. geniculata*, it does provide additional information about recovery objectives. The plan stresses adequate protection from further habitat loss, degradation, and fire suppression along with proper management to ensure this long-lived species is reproducing noting that seedlings are not being observed and adequate reproduction is verified among all populations. Monitoring programs demonstrate that the sites support sufficient populations sizes, distributed throughout the historic range and are sexually or vegetatively reproducing at sufficient rates to maintain the population (Service 1999, p. 4-1179).

Biology and Habitat Summary

Biology

Details of the life history and biology on *P. geniculata* can be found in the 2009 and 2017 5-year reviews, both recovery plans, and listing rule (Service 2019, 2017, 1996, 1999, and 1987 respectively). We provide a summary of information below pertinent to the species' current status.

Prunus geniculata is a long-lived, heavily branched shrub attaining heights of up to 2 meters (6.5 ft). The young twigs are strongly geniculate (zig-zag shaped) with lustrous reddish-brown or purplish smooth bark. Older stems are thin, gray and usually lichen-encrusted. Leaves are simple and very green when present. The small, fragment flowers are radially symmetrical with five white petals. The fruit is an ovoid or ellipsoidal drupe with a flattened seed and dull reddish in color when ripe.

Habitat and Distribution

Optimal habitats for *P. geniculata* are fire-maintained white and yellow sands in rosemary scrub, oak scrub, xeric scrubby flatwoods, longleaf pine sandhills, and turkey oak sandhills in central Florida mainly on the Lake Wales Ridge (LWR). The current range includes Highlands, Lake, Orange, Osceola, and Polk counties (Figure 1).

The current status of the populations for this review was generated from the Florida Natural Areas Inventory (FNAI) database (2022), which contains all Element Occurrence Records (EO) known. An EO is considered a distinct population that is separated from another EO by a distance of 1 kilometer (0.62 miles) or greater. Each EO is ranked by experts when they visit a population. These quality rankings are an estimate of viability of the EO (e.g., A = Excellent, B = Good, C = Fair, D = Poor, E = Extant, F = Failed to Find, H = Historical, NR = Not Ranked, and X = Extirpated).

Based on the FNAI data, a total of 98 EOs have been documented since 1979. Of those, 34 EOs have been categorized as either historical (18), extirpated (11) or failed to find (5). Of the 64 extant EOs, 40 are found on conservation lands and 24 are in private ownership. Many of these EOs have not been surveyed for decades, especially the occurrences on private lands.

The lack of management to ensure suitable habitat on these private lands along with the amount of time that has transpired since the populations were last observed may increase the number of historical or extirpated EOs.

In addition, many of the populations on conservation lands have also not been surveyed in over a decade, so the status and number of plants reported might not be an accurate reflection of current conditions. Table 1 provides a list of the 40 populations on conservation lands including: the site name and EO number, county where they occur, last observed date, most recent viability ranking, and plant estimate (not necessarily from FNAI last observed date). Based on the last available information on the protected populations 13 were ranked as excellent or good (A, B, B?, or AB), 12 were ranked as good-fair or fair (BC or C), 4 were ranked as poor (D), and 8 were ranked only as extant (E, indicating a rank was not assessed during last visit).

Analyzing the status of this species is challenging based on the lack of current survey data along with virtually no monitoring records for most populations. Only 12 populations have been observed within the last decade. The majority of the conservation land populations are comprised of few individuals with only six populations estimated in the hundreds; however, this long-lived species has the ability to persist on the landscape for extended periods of time. Lack of management – especially absence of fire – coupled with sexual reproductive failure, high predispersal seed predation, and low seed germination limits recruitment of individuals into the population (Weekly et al., 2010). Therefore, many of these populations may consist of relic plants suggesting declining demographic trends.

The conservation lands with the highest population viability potential would include:

LWRWEA - Homes Avenue (EO 35)
LWRWEA - Carter Creek (EO 36)
LWRNWR - Flamingo Villas (EO 55)
(Highlands County)

Seminole State Forest - Flat Lake Warea Tract (EO 74)
(Lake County)

LWRWEA- Sullivan Tract (EO 56)
LWR State Forest - Arbuckle Tract (EOs 44, 45, 124, 125, 139)
LWR State Forest - Walk-in-Water (EO 141, 142, 148, 149)
(Polk County)

These seven conservation lands support the largest populations remaining for the species (Table 1). As mentioned prior, the lack of monitoring data for all populations limits the ability to predict accurate viability.

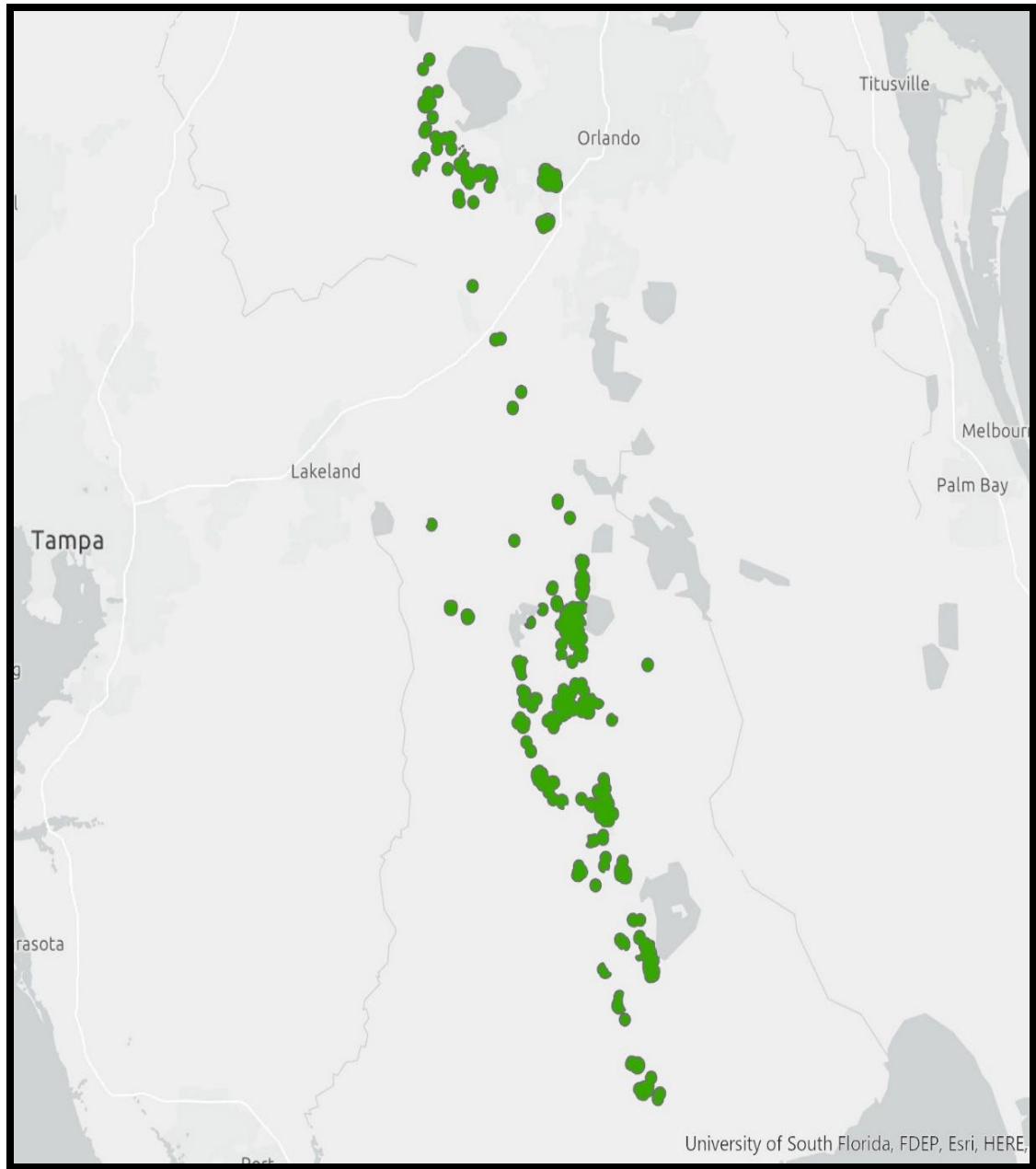


Figure 1. *Prunus geniculata* populations (Element Occurrence Records) distribution in Highlands, Lake, Orange, Osceola, and Polk counties, Florida.

Table 1. *Prunus geniculata* populations on managed conservation lands and their most recent viability ranking (A = Excellent, B = Good, C = Fair, D = Poor, E = Extant, or a combination of rankings).

CONSERVATION LAND (EO #)	COUNTY	LAST OBSERVED	RANK	ESTIMATE
Lake June-in-Winter Scrub State Park (15)	Highlands	10-15-2014	B	< 25
LWRWEA - Gould Road (31)	Highlands	5-18-2018	BC	< 25
LWRWEA - Homes Avenue (35)	Highlands	1-18-2019	A	121 - 1161
LWRWEA - Carter Creek (36)	Highlands	12-4-2019	B	10 - 99
LWRNWR - Flamingo Villas (55)	Highlands	5-10-2004	BC	10 - 99
LWRWEA - Lake Apthorpe (75)	Highlands	1999 - 2000	AC	< 10
LWRWEA - Clements Tract (96)	Highlands	4-26-2011	AB	?
Archbold B. S. - McJunkin Tract (137)	Highlands	10-14-2004	B	< 40
LWRWEA - Lake Apthorpe (151)	Highlands	10-31-2018	E	?
LWRWEA (152)	Highlands	3-29-2018	E	?
Warea Archipelago Flat Lake Warea Tract (74)	Lake	7-28-2011	A	300 - 400
Scrub Point Preserve (102)	Lake	2004	D	2
Warea Archipelago - Schofield Sandhill (92)	Lake	7-30-2007	B	> 25
Orange County Golf Center Cons. Area (138)	Orange	2-7-2008	B	< 60
Crooked Lake Sandhill - Longleaf Pine (84)	Osceola	2-7-2009	BC	~ 10
Warea Archipelago - Lake Davenport (91)	Osceola	4-29-2004	D	1
LWRWEA - Hesperides (10)	Polk	10-17-2011	BC	< 20
LWR Conservation Bank (12)	Polk	9-21-2004	E	?
LWRWEA - Hickory Lake (13)	Polk	2003	BC	< 15
Saddle Blanket Lakes Scrub (23)	Polk	2-14-2001	BC	< 15
LWR State Forest - Arbuckle (44)	Polk	6-27-2012	BC	5 - 10
LWR State Forest - Arbuckle (45)	Polk	1-4-2013	B?	5
A.D.B. Catfish Creek State Park (46)	Polk	10-10-2004	D	2
A.D.B. Catfish Creek State Park (47)	Polk	4-16-2008	E	1
Tiger Creek Preserve (50)	Polk	2-14-2001	B	32
Tiger Creek Preserve (51)	Polk	2-14-2001	C	6
LWRWEA - Sullivan Tract (56)	Polk	10-9-2019	AC	>100
Lake McLeod NWR (113)	Polk	4-30-2014	BC	48
LWR State Forest - Walk-in-Water (119)	Polk	2008	C	4
Avon Park Air Force Range (123)	Polk	4-21-2004	D	1
LWR State Forest - Arbuckle Tract (124)	Polk	3-30-2017	A	>200
LWR State Forest - Arbuckle Tract (125)	Polk	3-30-2017	A	>400
LWR State Forest - Arbuckle Tract (139)	Polk	11-5-2005	A	201
LWR State Forest - Walk-in-Water (141)	Polk	5-12-2015	C	9
LWR State Forest - Walk-in-Water (142)	Polk	2-21-2006	BC	38
LWR State Forest. - Hesperides (144)	Polk	3-29-2017	E	18
Serenoa Preserve - Hill Property (147)	Polk	1992	E	5
LWR State Forest - Walk-in-Water (148)	Polk	10-23-2012	AC	1
LWR State Forest - Walk-in-Water (149)	Polk	4-2-2007	E	1
Tiger Creek Preserve (150)	Polk	2005	E	5

A.D.B. Catfish Creek State Park - Allen David Broussard Catfish Creek Preserve State Park

Archbold B.S. - Archbold Biological Station

LWR - Lake Wales Ridge

LWRNWR - Lake Wales Ridge National Wildlife Refuge

LWRWEA - Lake Wales Ridge Wildlife and Environmental Area

NWR - National Wildlife Refuge

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. Habitat destruction, modification, and degradation on private lands remain the primary threat range-wide to the species. Populations occurring on private lands remain subject to adverse human activity, predominately loss of habitat from development. Additionally, lack of management – especially fire suppression – on private lands degrades the habitat over time resulting in less suitability to maintain population viability.

On public conservation lands the destruction or modification of habitat is no longer as significant because of protection afforded and restricted use. However, budget constraints and prioritizing available resources may preclude proper, necessary management activities on conservation lands to maintain the habitat suitability that is appropriate for *P. geniculata*. As with the majority of scrub (xeric) habitat endemics, fire management (frequency and proper timing) on any land where the species occurs is essential to long-term persistence for these populations.

Factor B: overutilization for commercial, recreational, scientific, or educational purposes. Overutilization for commercial, recreational, scientific, or educational purposes was not identified as a potential threat in the original listing package. Since listing, no evidence of overutilization has been observed.

Factor C: disease or predation. There is still likely a large amount of loss of fruits and seeds to predation at all sites as noted in the 2009 and 2017 5-year reviews (Service 2009, 2017). Several seed-predating insects have been confirmed to be present in *P. geniculata* populations. The fruit-feeding sawfly (*Hoplocampa spp.*) and plum curculio weevil (*Conotrachelus nenuphar*) are among those identified (M. Jenkins, pers. comm. 2023); however, the detrimental effects on fruit or seed production has not been adequately determined to infer negative consequences at this point (Weekley et al., 2010). In addition, a detailed explanation of the lack of data on seed germination and seedling recruitment preclude a full understanding of the demographics of the species (Service 2009; Weekley et al., 2010).

Factor D: the inadequacy of existing regulatory mechanisms. The Act protect plants only when they occur on federally-owned lands or when a federal nexus is involved. Florida’s “Preservation of Native Flora of Florida” law (Rule Chapter 5B-40 of the Florida Administrative Code under authority from the Florida Statutes, Chapters 581.185, 581.186, and 581.187) protect plants only when they occur on state-owned lands. This law allows for collection of plants on state-owned lands by permit only and only for scientific and educational purposes.

Prunus geniculata is listed as endangered by the State of Florida on the Regulated Plant Index (Florida Department of Agriculture and Consumer Services Rule [FDACS] 5B-40). This law regulates the taking, transport, and sale of listed plants. However, private property

owners are not prohibited under this law from destroying populations of listed plants on their land nor are they required to manage habitats to maintain populations.

These existing federal and state regulations prohibit the removal or destruction of listed plant species on public lands. However, they afford no protection to listed plants on private lands. In addition, state regulations are less stringent than federal regulations on land management practices that may adversely affect populations of listed plants. Therefore, the existing regulations do not provide sufficient protections for species to protect them from its existing threats.

Factor E: other natural or manmade factors affecting its continued existence. The Service is not aware of any climate change information specific to the habits or habitat of *P. geniculata* that would indicate what potential effects climate change and increasing temperatures and rainfall, or extended drought conditions may have on this species.

The National Climate Assessment (Melillo et al., 2014) reports that the average precipitation has decreased in central Florida since 1900; however, heavy downpours are increasing in frequency and intensity since 1970. Future projected precipitation changes in seasonality for central Florida indicate 0 to +10% in winter, 0 to -10% in spring, -10 to -20% in summer, and +10 to +20% in fall will occur. Statewide annual rainfall is projected to increase from 0 to +20% by 2100. Sea level rise resulting from a warming climate and hotter water temperatures will not affect this species since it occurs on ancient, relict beach dunes in noncoastal areas.

Consecutive dry days are expected to increase 10 to 20% for most of Florida. Predictions of increased drought frequency, intensity, and duration could result in plant losses due to prolonged drought conditions (Melillo et al., 2014). However, this plant and other xeric species are relatively drought-resistant, but seasonality changes may affect seedling recruitment and general phenology of the species. Although Florida's coastal areas will likely be influenced by sea level rise, based on our understanding of current sea level rise models and the species occurrences inland on well drained soils (e.g., ancient ridges mainly in central Florida), sea level rise does not currently pose a threat to this species. The Service has no evidence that climate changes observed to date have had any adverse impact on the species, or its habitat nor is there information suggesting that the species, will not be able adapt to predicted changes in drought conditions.

Synthesis

Prunus geniculata is a long-lived, heavily branched shrub, that thrives in fire-maintained scrub habitat native to ancient ridges in central Florida. There are estimated to be 64 extant populations in 5 counties. Of these populations, 40 are found on conservation lands and 13 of those had their conditions ranked as excellent or good on when last observed. There were 51 populations that are either found on private lands or have lower ranked conditions. Additionally, only six populations on the conservation lands have an estimated size over 100 individuals.

Habitat destruction, modification, and degradation remain the primary threat to the species on private lands in conjunction with insufficient management and monitoring of populations on conservation lands.

Predation on fruits and seeds coupled with potential reduced reproductive success may be negatively impacting the species, however insufficient data precludes how these variables affect population health and persistence. Because of the limited number of potentially viable populations and the continued threats, *P. geniculata* continues to meet the definition of an endangered species.

RECOMMENDED FUTURE ACTIVITIES

- Collaboration with conservation land managers to increase habitat suitability of occupied habitat by promoting beneficial management options to increase population persistence wherever additional opportunities exist when engaging with agency management personnel.
- Encourage landowners whose populations occur on conservation lands to monitor occupied habitat for increased data of long-term species trends.
- Initiate long-term monitoring programs for populations with highest viability potential on conservation lands to discern long-term species trends.

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RESULTS / SIGNATURES

U.S. Fish and Wildlife Service Status Review of Scrub Plum (*Prunus geniculata*)

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.

- ☐ Downlist to Threatened
☐ 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:

Division Manager, Florida Classification and Recovery, Florida Ecological Services Field Office, Fish and Wildlife Service

Approve **LOURDES MENA**

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