

**White Irisette  
(*Sisyrinchium dichotomum*)**

**5- Year Status Review:  
Summary and Evaluation**



*Photo by Gary Peeples*

**U.S. Fish and Wildlife Service  
Southeast Region  
Asheville Ecological Services Field Office  
Asheville, North Carolina**

**July 2024**

**STATUS REVIEW**  
**White irisette (*Sisyrinchium dichotomum*)**

**GENERAL INFORMATION**

**Current Classification:** Endangered

**Lead Field Office:** Asheville Ecological Services Field Office

**Review Author(s):** Dr. Natali Ramirez-Bullon and Gary Peeples, Asheville Ecological Services Field Office

**Reviewers:**

**Lead Regional Office:** Southeast Regional Office, Carrie Straight

**Cooperating Field Office(s):** South Carolina Ecological Services Field Office, Charleston, South Carolina, Melissa Chaplin

**Date of original listing:** October 28, 1991 (56 FR 48752; September 26, 1991)

**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 White irisette to inform this status review.

We announced initiation of this review in the Federal Register on May 11, 2023 (88 FR 38320) with a 60-day comment period and received no comments. The primary sources of information used in this analysis were the 1991 final listing rule (56 FR 48752), the 1995 recovery plan, peer-reviewed reports, agency reports, unpublished survey data and reports, and personal communication with recognized experts. This review was completed by the U.S. Fish and Wildlife Service, Asheville Ecological Services Field Office, Asheville, North Carolina. 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 white irisette.

**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](#)):**  
5C. White irisette is a species with a high degree of threat, a low recovery potential, and in conflict with urban and trail development.

**Review History:**

Two previous 5-year review recommending no change in status were signed on May 3, 2013, and July 29, 2019 (Service 2013, 2019).

## **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.

#### **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**

Final Recovery Plan for the white irisette (*Sisyrinchium dichotomum*), April 10, 1995.

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](#)).

Criterion 1: *It has been documented that at least nine self-sustaining populations exist and that necessary management actions have been undertaken by the landowners or cooperating agencies to ensure their continued survival.*

Criterion 2: *All of the above populations and their habitat are protected from present and foreseeable human-related and natural threats that may interfere with the survival of any of the populations.*

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

### **Biology and Habitat Summary**

White irisette is a perennial herb that occurs on mid-elevation scattered mountain slopes in western North Carolina and northern South Carolina (400 to 1000 meters above sea level, Figure 1). As of 2023, there are 15 populations of this species (Table 1). We reviewed the North Carolina Natural Heritage Program and the South Carolina Heritage Trust databases. For this

review, we consider each Element Occurrence as a population and sub-Element Occurrences as sub-populations. White irisette has 92 sub-populations, ranging from 1 to 670 clumps in size, with a median value of 11 clumps per sub-population.

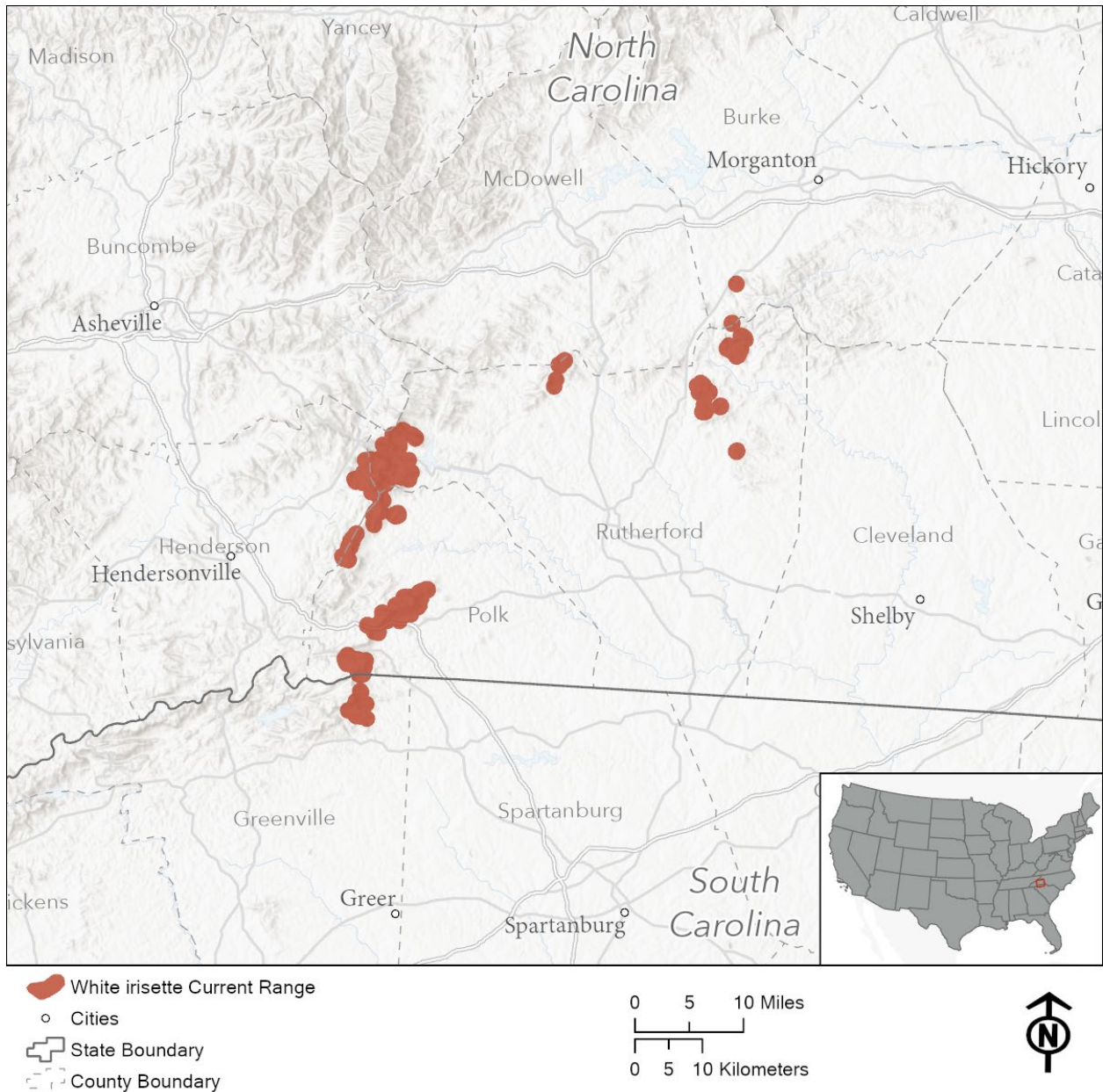


Figure 1: White irisette (*Sisyrinchium dichotomum*) current range.

We summarized monitoring data since 2004 in Table 1, incorporating data collected since the last five-year review. Though comprehensive monitoring of the species has not been accomplished (Table 2), the limited monitoring that has been carried out indicates the species persists on the landscape. The table indicates a sharp decline in the Whiteoak/Chestnut/Miller

population, however the two largest sub-populations within that population have not been surveyed in the last ten years.

*Table 1: Number of white irisette clumps counted within each population by five-year window. Cells with “ns” indicates no survey was conducted. Not all sub-populations were counted within each five-year window (see Table 2). Situations where exact number of clumps in a subpopulation was not recorded (e.g., clumps were seen but not counted) are indicated with a “+.”*

Population	State	County	2004-2008	2009-2013	2014-2018	2019-2023
Round Mountain	NC	Polk	ns	ns	6	20
Melrose Mountain	NC/SC	Polk/Greenville	ns	445	312	167
Whiteoak/Chestnut/Miller	NC	Polk	1130	1600	248+	4
Clifffield Mountain/Deep Gap	NC	Henderson, Polk	ns	ns	115	ns
World's Edge/Sugarloaf	NC	Henderson, Polk, Rutherford	541+	9+	237+	772
Rotten Creek Headwater	NC	Polk	ns	ns	12	ns
Rumbling Bald/Cedar Knob/Round Top Mountain	NC	Rutherford	548	568	ns	670
Harris Mountain/Upper Cathys Creek	NC	Rutherford	ns	ns	ns	19
South Mountain Yellowtop/Biggerstack/Middle Mtn	NC	Rutherford	75	1+	ns	ns
Cherry Mountain	NC	Rutherford	19	ns	ns	ns
South Mountain Silver Creek Little Huckleberry Mountain	NC	Burke, Rutherford	268	ns	ns	233
South Mountain Hall Knob	NC	Burke	4	ns	ns	ns
South Mountain Mike Mountain/Windy Gap	NC	Rutherford, McDowell	ns	ns	ns	ns
Chestnut Ridge	SC	Greenville	ns	ns	ns	135
Hooker/Bailey Ridges	SC	Greenville	50-60	ns	ns	38
<b>Totals</b>			<b>2,635+</b>	<b>2,623+</b>	<b>930+</b>	<b>2,058</b>

*Table 2: Number of white-irisette sub-populations surveyed within each population, by 5-year window (there are currently 92 known subpopulations). Cells with “ns” indicates no survey was conducted.*

Population	State	County	2004-2008	2009-2013	2014-2018	2019-2023
Round Mountain	NC	Polk	ns	ns	1	1
Melrose Mountain	NC/SC	Polk/Greenville	ns	2	2	2
Whiteoak/Chestnut/Miller	NC	Polk	4	4	4	1
Clifffield Mountain/Deep Gap	NC	Henderson, Polk	ns	ns	1	ns

Population	State	County	2004-2008	2009-2013	2014-2018	2019-2023
World's Edge/Sugarloaf	NC	Henderson, Polk, Rutherford	16	2	8	7
Rotten Creek Headwater	NC	Polk	ns	ns	1	ns
Rumbling Bald/Cedar Knob/Round Top Mountain	NC	Rutherford	3	3	ns	1
Harris Mountain/Upper Cathys Creek	NC	Rutherford	ns	ns	ns	1
South Mountain/Yellowtop/Biggerstack/ Middle Mtn	NC	Rutherford	2	1	ns	ns
Cherry Mountain	NC	Rutherford	1	ns	ns	ns
South Mountain Silver Creek Little Huckleberry Mountain	NC	Burke, Rutherford	1	ns	ns	1
South Mountain Hall Knob	NC	Burke	1	ns	ns	ns
South Mountain Mike Mountain/Windy Gap	NC	Rutherford, McDowell	ns	ns	ns	ns
Chestnut Ridge	SC	Greenville	ns	ns	ns	16
Hooker/Bailey Ridges	SC	Greenville	2	ns	ns	5
<b>Totals</b>			<b>30</b>	<b>12</b>	<b>18</b>	<b>14</b>

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 the information provided in the last 5-year review remains valid (Service 2019).

### **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.

The threats of conversion of habitat for industrial/residential development, trampling, and highway construction and improvements described in the final listing rule are still impacting white irisette (Factor A; 78 FR 45083). Recent surveys indicated that electric transmission right of way maintenance via herbicide spraying and vegetation clearing is a threat. In 2023, numerous individuals of two sub-populations were lost to vegetation clearing and backpack spraying inside a state park by contractors maintaining power line right-of-way. We expect this threat to continue in the future, without proper communication between electric transmission contractors, supervisors, and land managers. Trampling stemming from nearby hiking trails is ongoing and severe. These examples show that even within protected lands, the plant is still vulnerable to the threats of habitat destruction.

We have no indication that overutilization for commercial, recreational, scientific, or educational purposes (Factor B) poses a significant threat for the species.

Invasive epigeic earthworms (Factor C) are the only known possible predators of white irisette, and evidence of the severity of this threat is still inconclusive (see Service 2019 for details).

The inadequacy of existing regulatory mechanisms (Factor D) remains a threat to the species as acknowledged in the recovery plan (Service 1995). North Carolina laws protecting rare plants provide limited authorities. South Carolina does not have laws protecting rare plants. Neither state protects plants from habitat destruction from recreational use, which is a known threat to the species. As previously described, even within protected lands threats to the species still persist.

Suppression of natural disturbance (such as grazing/browsing and possibly fire) and encroachment by exotic species (Factor E) were identified in the listing rule (Service 1991). These threats reduce growth and survival by increasing competition for light and space and can impact the whole species range. Although it can be moderate, it is still ongoing. Species requires disturbance to maintain its open habitat and populations located away from openings are vulnerable to extirpation due to shading.

### **Synthesis**

White irisette is a perennial herb endemic to scattered mountain slopes in western North Carolina and northwest South Carolina. At the time the species was listed, four populations of white irisette were known to still exist in Polk and Rutherford counties, NC. As of 2023, white irisette has 15 populations comprised of 92 sub-populations, ranging from 1 to 670 clumps in size, with a median value of 11 clumps per sub-population. White irisette continues to be threatened by habitat modification and direct destruction of individual plants from electric transmission line right-of-way maintenance, trampling from recreation trails that are adjacent to populations, and lack of natural disturbance that maintains habitat. Because of ongoing threats and the current condition of the species, this species continues to meet the definition of an endangered species.

## **RECOMMENDED FUTURE ACTIVITIES**

The 2013 and 2019 five-year reviews included a list of recommendations for recovery of the species. Recommended future activities are as follows:

- Work with partners to investigate management strategies that will minimize or eliminate threats to the species with regards to invasive, exotic plant management and leaf litter accumulation.
- Work with partners to investigate the impact invasive, epigeic earthworms may be having on *Sisyrinchium dichotomum* and suitable habitat.
- Work with partners and/or botanical gardens to determine seed germination requirements and rate of seed viability. Develop a plan for conserving the species in ex situ collections – either through conservation gardens or seed banking.
- Work with partners to conduct a range-wide census of all populations at least every five years.
- Collaborate with partners to determine how climate change would impact the resiliency of white irisette populations.
- Work with partners to identify gaps in management knowledge.

- Quantify threats and protection priority of all sub-populations.
- Collaborate with partners to establish demographic plots to estimate population growth rates to determine if some populations meet the criteria of self-sustaining.

## REFERENCES

North Carolina Natural Heritage Program. 2024. Element Occurrence records for *Sisyrinchium dichotomum*. Print date January 3, 2024.

South Carolina Heritage Trust Program. 2024. Element Occurrence records for *Sisyrinchium dichotomum*. Print date February 20, 2024.

U.S. Fish and Wildlife Service (Service). 1991. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for *Sisyrinchium dichotomum* (White Irisette). Federal Register 50:48752-48755.

U.S. Fish and Wildlife Service (Service). 1995. Recovery Plan for White Irisette (*Sisyrinchium dichotomum*) Bicknell. Atlanta, GA. 22 pp.

U.S. Fish and Wildlife Service (Service). 2013. White Irisette (*Sisyrinchium dichotomum*) 5-Year Review: Summary and Evaluation. Asheville, NC. 26 pp

U.S. Fish and Wildlife Service (Service). 2019. White Irisette (*Sisyrinchium dichotomum*) 5-Year Review: Summary and Evaluation. Asheville, NC. 41 pp

## RESULTS / SIGNATURES

### U.S. Fish and Wildlife Service Status Review of white irisette

#### **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:**

**Field Supervisor, Asheville Ecological Service Field Office, Fish and Wildlife Service**

Approve \_\_\_\_\_