5-YEAR REVIEW

Ash Meadows gumplant (*Grindelia fraxino-pratensis*)

Photo by Peter Pearsall, U.S. Fish and Wildlife Service, June 2020

October 2020

GENERAL INFORMATION:

Species: Ash Meadows gumplant (*Grindelia fraxino-pratensis*)
Date listed: May 20, 1985
FR citation(s): 50 FR 20777
Classification: Threatened

BACKGROUND:

Most recent status review: The status of Ash Meadows gumplant was last reviewed on January 10, 2008, in a 5-year review (Service, 2008).

FR Notice citation announcing this status review: 84 FR 36116, Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews of 58 Species in California, Nevada, and the Klamath Basin of Oregon, 26 July 2019.

ASSESSMENT:

Information acquired since the last status review:
This 5-year review was conducted by the U.S. Fish and Wildlife Service's (USFWS) Southern Nevada Fish and Wildlife Office. Data for this review were solicited from interested parties through a Federal Register notice announcing this review on 26 July 2019. We also contacted the Nevada Division of Forestry (NDOF), the Nevada Natural Heritage Program (NNHP), the United States Bureau of Land Management (BLM) Southern Nevada District Office, the United States Geological Survey (USGS) Henderson Field Station, the Clark County Desert Conservation Program, the Rancho Santa Ana Botanic Garden, the Desert Research Institute, the Nevada Native Plant Society, and participants at the 2019 Nevada Rare Plant Workshop to request any data or information we should consider in our review. Additionally, we conducted a literature search and a review of information in our files.

We received a correspondence from Rancho Santa Ana Botanic Garden (2019). They state results are preliminary and not yet available for surveys of the Ash Meadows gumplant in California. They also reported that feral horses have been documented in occupied Ash Meadows gumplant habitat in lower Carson Slough in 2018 and 2019, and thus remain a threat. We received a recent monitoring report from Ash Meadows NWR (Pyramid Botanical Consultants, 2019). The results indicate the species is still present at all previously known populations within the refuge, and species distribution remains the same as described in our most recent 5-year review (Service, 2008).

Summary of population monitoring
At the time of listing, it was estimated that there were 10,000 to 13,000 individuals Ash Meadows gumplant individuals (Cochrane 1981, p. 12). In 2001 in Nevada, the Ash Meadows gumplant was estimated to be about 13,000 individuals (Morefield 2001c, p. 1). Results from the 2008–2010 Refuge-wide rare plant survey estimate that 656,890 individuals are present on the Refuge (BIO-WEST 2011, p. 75). Estimates of Ash Meadows gumplant individuals on the BLM ACEC and private lands within the Refuge boundary do not exist.

Based on a 2003 survey of the California population, which used transects to develop population estimates, there are 241,514 ± 69,660 Ash Meadows gumplant plants (Johnston and Zink 2004, p. 20). Although sampling occurred in an area of fairly uniform distribution, large portions of the area were still devoid of plants. The highly dependent nature of the plant to water made for dense occurrence along slough channels followed by gaps between channels that were essentially devoid or sparsely populated. The gradient distribution of plant numbers in relation to the waterways of the slough may account for the high standard deviation (Johnston and Zink 2004, pp. 20–24).

Table 1. Summary of Ash Meadows gumplant populations in Nevada and California.

Population (Service)*	Site Name	BIO-WEST minimum scale occurrence**	BIO-WEST maximum scale occurrence***	Estimated Number of Plants
1	Big Springs Rd S	1	1	600
	Spring Meadows Rd	2	1	238,310
	Spring Meadows Rd W 1	3	1	210
	Spring Meadows Rd W 2	4	1	138
	Refuge boundary SW 1	5	1	1,950
	Jackrabbit Spring S	6	1	1,650
	Refuge boundary SW 2	7	1	187
	Jackrabbit Spring NW	8	1	396
	Lower Crystal Marsh S	9	1	105
	Ash Meadows Rd–Jackrabbit Spring	10	1	20
	Ash Meadows Rd	11	1	121,945
	Point of Rocks Spring	12	1	3,560
	Crystal Reservoir–Lower Crystal Marsh	13	1	235,622
	Horseshoe Marsh S	14	1	42
	Horseshoe Marsh N	15	1	1,850
	Crystal Reservoir	16	1	27,481
	Crystal Reservoir–West Spring Meadows Rd	17	1	2,180
	Collins Ranch	18	1	2,529
	West Spring Meadows Rd	19	1	93
	Crystal Spring	20	1	80
	Refuge boundary W at Spring Meadows Rd	21	1	379
	Marsh Spring	22	1	3,856
	Warm Spring	23	1	13,707
2		NA	NA	241,514 (±69,660)
APPROXIMATE TOTAL				**898,404**

*Population (USFWS) = Populations aggregated according to NatureServe 2004.
**BIO-WEST minimum scale occurrence = 0.16 km or 0.1 mi separation distance.
***BIO-WEST maximum scale occurrence = 1 km or 0.6 mi separation distance.

Research and/or grant supported activities

I. *Contributions of Insect Pollinators to the Reproductive Fitness of 12 Rare Plants on Ash Meadows National Wildlife Refuge (BIO-WEST 2009):*
This study: (1) identified the floral visitors of 12 rare plant species on the Refuge; (2) identified plant species that support a large portion of the Refuge's insect pollinator community; and (3) identified habitat preferences and locations of insect pollinators nest sites relative to the 12 rare plant species (Tanner *et al.* 2012).
Project status: Completed.

II. *Inventory of Moisture and Salt Distribution in Soils and Sediments that Support Threatened and Endangered Plants in the Ash Meadows National Wildlife Refuge (Breit in prep):*
Auger holes and excavations were used to inventory the vertical and lateral distribution of salts in soils and sediment at 20 sites known to contain protected plant species and at eight sites lacking those plants. Two sites were instrumented with soil moisture sensors so that Refuge staff can monitor long-term change. Information from this project will help to identify suitable sites for expansion and restoration of threatened and endangered plants as well as provide baseline data on the full extent of impacts from water extraction within the Amargosa Desert Hydrographic Basin.
Project Status: Year one progress report is complete, final report is in progress.

III. *Landtypes, Ash Meadows National Wildlife Refuge (White Horse Associates 2010):*
From 2007 to 2009, landtypes were mapped to better define the physical and hydrologic setting for biological studies of rare and endemic species, to help plan future restoration efforts, and to provide information on resources to better inform management decisions on the Refuge. The approach entailed two phases: (1) Stratify the Refuge into preliminary landtype classes distinguished by topographic, geomorphic, hydrologic, soil, and vegetative parameters and (2) Redefine and focus preliminary landtype classes towards the needs of other biological studies, restoration planning, and general management application.
Project Status: Completed.

IV. *Reproductive Biology of the Rare Plants Ash Meadows National Wildlife Refuge (Pavlik and Moore 2012):*
From 2008 to 2009, subpopulations of eleven rare plant taxa were mapped and marked on the Refuge. The three main goals for the project were: (1) Resolve demographically based patterns of phenology and reproductive output that will help to link rare plant biology to pollinator identification, activity, and habitat requirements; (2) Determine the breeding systems of rare plants from integrating parallel, demographically based studies of reproductive biology; and (3) Recommend general conservation and restoration prescriptions based on breeding systems and reproductive biology of rare plants on the Refuge.
Project Status: Completed.

V. *Vegetation Community Mapping and Rare Plants Survey (BIO-WEST 2011):*
From 2007 to 2009, vegetation and rare plant studies were conducted to locate and map the distribution of rare and listed plants on the Refuge. In addition, vegetation communities were mapped and classified to the alliance and association scale (most specific levels of vegetation classification) throughout the entire Refuge. The information provided in the 2011 Vegetation Community Mapping and Rare Plants Survey Final

Report, will assist with planning future habitat restoration activities (BIO-WEST 2011, entire, plus appendices).
Project Status: Completed.

VI. *Water and Soluble-Salts in Soils Relative to the Distribution of Endemic Plants at Ash Meadows National Wildlife Refuge, Nevada (Breit in prep):*
The objectives of this project are: (1) Describe the distribution and composition of soluble-salts and water in the unsaturated zone within areas with varied populations of endemic plants; (2) Interpret the plant distribution in context of geochemical and hydrologic processes known to be active in arid soils and sediments; and (3) Synthesize the findings to provide a generalized view of changes in the distribution of water and salt that might result from increasing aridity as a result of climate change, modification of hydrologic resources, and development of private in-holdings (Breit and McKelvey 2010, pp. 1–7).
Project Status: In prep.

VII. *Protocol Survey Report 2014-2019: Monitoring of Nine Endemic Rare Plants (Miller 2019):*
The objectives of this report are: (1) Summarize the existing dataset and evaluate the status of the nine endemic plant species using established viability analysis (Moore O'Leary et al. 2019); (2) Evaluate management objectives for nine endemic plant species at the refuge (Moore O'Leary et al. 2019); and (3) Evaluate protocol performance and implementation as the first independent implementation of the protocol.
Project Status: In prep.

Conclusion:

After reviewing the best available scientific information, we conclude that Ash Meadows gumplant (*Grindelia fraxino-pratensis*) remains a threatened species. The evaluation of threats affecting the species under the factors in 4(a)(1) of the Act and analysis of the status of the species in our most recent 5-year review (Service, 2008) remains an accurate reflection of the species current status.

RECOMMENDATIONS FOR FUTURE ACTIONS

I. Monitor compliance with Nevada Revised Statute Order 1197A (January 12, 2018), *Curtailment of New Appropriations of Groundwater within the Amargosa Valley Hydrographic Basin 230*, that prohibits new applications for water or water diversions within 25 miles of Devils Hole (and by proximity Ash Meadows NWR). Order 1197A supersedes 1197, which imposed similar regulations at 10 miles from Devils Hole. Water levels in Devils Hole are affected by pumping centers in the Amargosa Desert and the Ash Meadows groundwater basins (Halford and Jackson 2020).

II. Collaborate with the Ash Meadows NWR to implement the *Desert National Wildlife Refuge Complex – Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume I – August 2009* (Service 2009) and also the *Draft Ash Meadows Natural Resource Management Plan in review* (Service 2020); and

III. Support Ash Meadows gumplant research at the Ash Meadows NWR to monitor the population as identified in the *Recovery Plan for the Endangered and Threatened Species of Ash Meadows* (Service 1990); and

IV. Monitor the future activity of mineral rights in the Ash Meadows area. The BLM ACEC surrounding the refuge is withdrawn from mining and entry until 2029 (PLO# 7737, signed November 2nd, 2009), but requires renewal every 20 years. Mining can still occur on private inholdings within the refuge, but no active mining permits exist at this time.

Lead Field Supervisor, Fish and Wildlife Service

Approve GLEN KNOWLES Digitally signed by GLEN KNOWLES Date: 2020.10.06 11:09:03 -07'00' Date _____

The lead Field Office must ensure coordination with other offices and regions within the range of the species to ensure that any new information they have has been adequately considered prior to the review's completion. The lead field office should document this coordination in the agency record.

Literature cited:

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[Service] U.S. Fish and Wildlife Service. 2008. Ash Meadows gumplant (*Grindelia fraxino-pratensis*) Five-Year Review. 22 pp.

[Service] U.S. Fish and Wildlife Service. 2009. Desert National Wildlife Refuge Complex – Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume I – August 2009. 44 pp.

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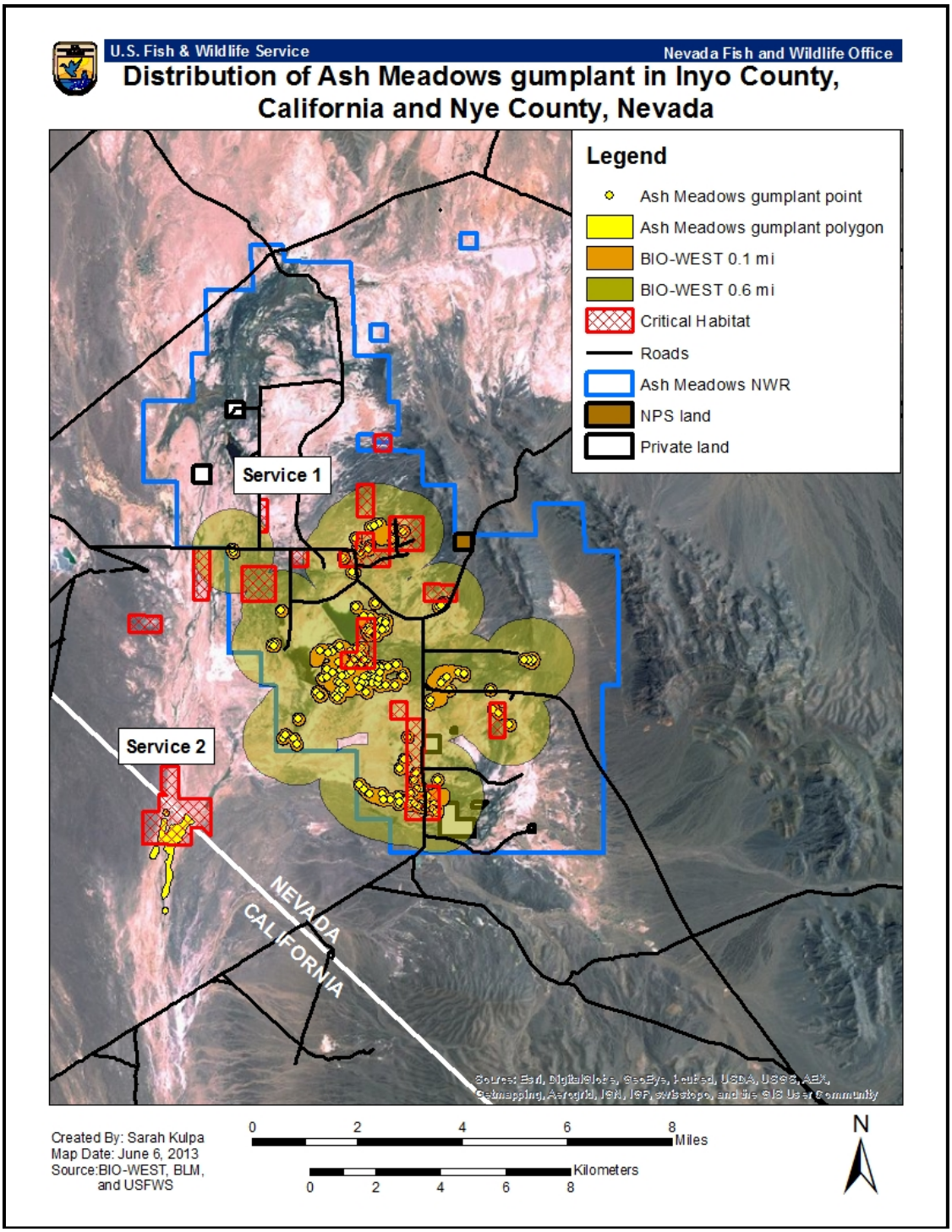

Figure 1: Distribution of Ash Meadows gumplant in Nye County, Nevada and Inyo County, California. Circles represent individual Amargosa gumplant plants, while bright yellow polygons represent a mapped boundary containing many individuals of this species. BIO-WEST's 0.1 mi (orange) and 0.6 mi (transparent yellow) separation distances are depicted on the map for reference; however, populations are highlighted by their Service population number derived according to NatureServe mapping standards (NatureServe 2004, entire).