5-YEAR REVIEW

Ash Meadows Naucorid
(*Ambrysus amargosus*)

Ash Meadows naucorid. Photo by Ryan Hagerty / USFWS

September 2025

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GENERAL INFORMATION:

Species: *Ambrysus amargosus*
Date listed: May 20, 1985
FR citation(s): 50 FR 20777
Classification: Threatened

BACKGROUND:

Most recent status review: The status of Ash Meadows naucorid was last reviewed September 2020, in a 5-year review (USFWS 2020a).

FR Notice citation announcing this status review:
89 FR 83510, Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews for 59 Pacific Southwest Species. Published on October 16, 2024.

ASSESSMENT:

Information acquired to update 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 October 16, 2024. We also contacted partners, stakeholders, and species experts to request any data or information we should consider in our review. We did not receive any information from the public in response to our Federal Register Notice announcing this 5-year review. Additionally, we conducted a literature search and a review of information in our files. Here we incorporate new information into our previous review.

The Ash Meadows naucorid (*Ambrysus amargosus*) (naucorid) is a small aquatic insect (Hemiptera:Naucoridae) endemic to the Point of Rocks springs within Ash Meadows National Wildlife Refuge (the Refuge), Amargosa Valley, Nye County, Nevada. Threats to the Ash Meadows naucorid that were identified when it was listed included ground water depletion causing reduced spring discharge and spring modification (Factor A); scientific over collection (Factor B); and predation by introduced fish and crayfish (Factor C). The threat of scientific over collection is reduced because of its listing.

This species was the first insect to be listed as threatened under the Endangered Species Act (Act). The Ash Meadows naucorid taxonomy as a species remains accepted based on recent studies (Reynoso-Velasco and Sites 2021 entire, Sites 2022 entire). Three specimens collected under the permit #TE45247C-0 in 2017, were included with the broad Naucoridae phylogeny and classification studies in which the species continues to be recognized (Sites 2018 p. 1, 2022 entire, Reynoso-Velasco and Sites 2021 entire).

At the time of listing, little was known about the species so most of the species biology information, hence its tie to groundwater, was based on other naucorid bugs described in the 1940s and 50s (Usinger 1946 pp. 185–210, Polhemus 1979 pp. 131–134). Since the time of listing, several studies from 1993 to 2010 have helped scientist understand the biology and habitat requirements of the Ash Meadow naucorid (Polhemus 1994 pp. 1–12, Parker et al. 2000 pp. 1–54, USFWS 2005a pp. 1–19). A reintroduction plan (Parker 2008 pp. 1–8) and management plan (Parker and Goodchild 2009 pp. 1–28) guide activities at Point of Rocks, including reintroductions, improvements to Kings Pool spring outflows, and standard population survey protocols. A draft protocol has been prepared for surveys being conducted to monitor naucorids (USFWS 2019 entire).

Ash Meadows naucorid occurs in small thermal springs, and their outflows where it prefers open areas of relatively high flowing spring brooks that have gravel-pebble size substrate (Parker et al. 2000 p. ii). Currently, the Ash Meadows naucorid only occupies five low-flow spring brooks and is likely absent in the location it was originally described. All occurrences of the Ash Meadows naucorid at Point of Rocks are a single population.

The life history of the Ash Meadows naucorid shows populations fluctuate seasonally with a peak in summer and a low in winter (Parker et al. 2000 p. ii and 21-24). Multiple formal surveys have been conducted, but the results are presented as density estimates, not population estimates (USFWS 2009a pp. 1–15, 2009b pp. 1–13, 2010a pp. 1–6, 2010b pp. 1–5, 2010c pp. 1–6, 2010d p. 1, 2011 pp. 1–4). We are not able to produce a reliable population trend because habitat enhancement and reintroduction projects have been conducted between surveys (USFWS 2005b pp. 3–4, 2005a pp. 1–19, 2006 pp. 9–10, 13–15, 2007 pp. 3–4, 2009c p. 1, 2010d p. 5, 2010a p. 1, 2010b p. 1, Reeves 2022 entire).

Other population surveys for the Ash Meadows naucorid are opportunistic qualitative surveys (Parker et al. 2000 p. 22). Qualitative surveys do not produce population estimates; rather, they describe general population status and trends (e.g., low, medium, high, increasing, stable, decreasing). Therefore, because habitat enhancement projects have been conducted between surveys, we cannot produce a reliable trend.

The best surrogate for estimating population size and trend is based on habitat quality size. Typically, declines in the population are strongly tied to habitat loss by shading from overgrowth of vegetation and loss of suitable substrate (USFWS 2005a p. 1, 2009b pp. 1–2, Goodchild and Parker 2008 p. 5 and 17). Fieldwork has occurred to improve habitat and monitor Ash Meadows naucorid numbers. Habitat has continued to be treated in some years to increase primary productivity by reducing over-shadowed spring brooks that reduce food availability of Ash Meadows naucorid (Parker and Goodchild 2009 entire, Reeves 2022 entire, Fairfield 2024 entire). Ash Meadows naucorid numbers continue to be low in abundance as observed during ongoing systematic monitoring (Parker and Goodchild 2009 entire, Reeves 2022 entire, Fairfield 2024 entire).

The Refuge has completed a Habitat Management Plan (Parker and Goodchild 2009 entire) for this species and has planning guidance (Parker 2008 entire) for reintroductions of this species into former occupied habitats. However, these populations have peaked and crashed from habitat changes. Reintroduction of the species to other springs should be considered where it's feasible

and they can become self-sustaining populations without impacting other sensitive taxa. Maintaining the correct substrate and vegetation will likely need to be ongoing.

The Desert National Wildlife Refuge Complex (Complex) and Ash Meadows National Wildlife Refuge have completed management and guidance documents that will contribute towards management and recovery of Ash Meadows naucorid. The Refuge prepared a Natural Resource Management Plan to guide management activities on the refuge (USFWS 2020b entire). The USFWS completed a Comprehensive Conservation Plan (CCP) that included Ash Meadows NWR in 2009 (USFWS 2009d pp. 3–9, 3–55) and direction for management actions to expand the range of the Ash Meadows naucorid at Point of Rocks. The *Conservation Summary of Priority Resources of Concern and the Springs, Spring-Fed Streams, and Spring Outflows at Desert National Wildlife Refuge Complex* document was completed in 2021 (USFWS 2021a entire) and is a conservation summary that is a step-down document from the CCP and is used to provide details of the goals, objectives, and measures that will guide springs, spring-fed streams, and spring outflows ecosystem management on the Complex.

Recently completed monitoring plans for Ash Meadows will support recovery of the Ash Meadows naucorid (USFWS 2021b entire, 2021c entire). Monitoring relevant to the Ash Meadows naucorid includes native fish and invasive aquatic species monitoring, water monitoring, site-specific protocol for monitoring naucorids and associated aquatic invertebrates. Recovery of the Ash Meadows naucorid will benefit from implementation of recently prepared or updated procedures, protocols, and practices for the prevention of the spread of invasives (Thomas 2020 entire, Prososki and Fairfield 2021 entire, USFWS 2024 entire).

The Ash Meadows naucorid is included in the Nevada Department of Wildlife's, Nevada State Wildlife Action Plan as a Species of Greatest Conservation Need (Nevada Department of Wildlife 2022 p. 46 and 217).

Four biological opinions have been rendered by the USFWS that included evaluations of potential effects of federal actions to the Ash Meadows naucorid and its critical habitat (USFWS 2020c entire, 2022 entire, 2025a entire, 2025b entire). The USFWS determined that the actions would not jeopardize the Ash Meadows naucorid's continued existence and would not adversely modify any designated critical habitat; or the actions may affect, but is not likely to adversely affect the Ash Meadows naucorid.

Conclusion:

After reviewing the best available scientific information, we conclude that Ash Meadows naucorid (*Ambrysus amargosus*) 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 listing determination (50 FR 20777) remains an accurate reflection of the species current status.

RECOMMENDATIONS FOR FUTURE ACTIONS:

- The 1990 Recovery Plan (USFWS 1990) should be updated using the most recent and best scientific and management information available including and applying information from restoration and surveys.

- 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.
- 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* (USFWS 2009d) and also the *Ash Meadows Natural Resource Management Plan* (USFWS 2020b).
- Support Ash Meadows naucorid 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* (USFWS 1990).
- The Refuge is implementing restoration projects that benefit the naucorid. To document recovery of the naucorid, these projects should include pre- and post-site sampling to verify and quantify that restoration actions are benefiting the species. The sites should be adaptively managed based on monitoring and future research to maintain appropriate open vegetative cover and gravel habitat for the naucorid.
- Monitor compliance with the January 12, 2018, Nevada Revised Statute Order 1197A, *Curtailment of New Appropriations of Groundwater within the Amargosa Valley Hydrographic Basin 230*, to ensure groundwater levels in Devils Hole can support the population. Order 1197 is no longer in effect. Water levels in Devils Hole are affected by pumping centers in Amargosa Desert and the Ash Meadows groundwater basins (Halford and Jackson 2020).

Lead Field Supervisor, Fish and Wildlife Service

Approve _____ Digitally signed by BRIAN CROFT Date: 2025.08.12 15:47:09 -07'00' Date _____

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