

## **5-YEAR REVIEW**

### **Ash Meadows Naucorid (*Ambrysus amargosus*)**



Ash Meadows naucorid. Photo by Ryan Hagerty / USFWS

**September 2020**

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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:** 50 FR 20777, 1985 listing

**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. July 26, 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 July 26, 2019. We also contacted State and local agencies, partners, stakeholders, and species experts 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.

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, Amargosa Valley, Nye County, Nevada. This species was the first insect to be listed as threatened under the Act. 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 as a result of its listing.

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; Service 2005b, pp. 1-19). Today, a reintroduction plan (Parker 2008, pp. 1-8) and management plan (Parker and Goodchild 2009, p. 1-28) guide activities at Point of Rocks, including reintroductions, improvements to Kings Pool spring outflows, and standard population survey protocols.

It 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).

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, pp. i, 21-24). Multiple formal surveys have been conducted, but the results are presented as density estimates, not population estimates (Service 2009a, pp. 1-15, 2009b, pp. 1-13, 2010a, pp. 1-6, 2010b, pp.1-5, 2010c, pp. 1-6, 2010d, p. 1, 2011, 2011). We are not able to produce a population trend because habitat enhancement and reintroduction projects were being conducted between surveys (Service 2005a, pp. 3-4, 2005b pp. 1-19, 2006a, pp. 9-10,13-15, 2007b, pp. 3-4, 2009c, p. 1, 2010a, p. 1, 2010a, p. 1, 2010d, p. 1).

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). Again, because habitat enhancement projects were being conducted between surveys, we cannot produce a 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 (Service 2005b, p. 1, 2008b, pp. 5, 17, 2009b, pp. 1-2).

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 Service completed a Comprehensive Conservation Plan that included Ash Meadows NWR in 2009 (Service 2009d) and direction for management actions to expand the range of the Ash Meadows naucorid at Point of Rocks. The Refuge has completed a Habitat Management Plan (see Parker and Goodchild 2009) for this species and has planning guidance (see Parker 2008) 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 continue until self-sustaining populations are established. Maintaining the correct substrate and vegetation will be ongoing. Ash Meadows NWR is currently preparing a Natural Resource Management Plan to guide management activities on the refuge (Service 2020).

## **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 should be updated using the most recent and best scientific and management information available including and applying information from restoration and surveys.
- 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 gravel habitat for the naucorid.
- Collaborate with the Ash Meadows NWR to implement the *Desert National Wildlife Refuge Complex – Ash Meadows, Desert, Moapa Valley, and Pahrangat 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).
- 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* (Service 1990).
- 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 \_\_\_\_\_ Date \_\_\_\_\_

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