Megalagrion oceanicum (McLachlan, 1883)
Oceanic Hawaiian damselfly
Odonata: Zygoptera: Coenagrionidae

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SUMMARY

Megalagrion oceanicum is endemic to the Hawaiian island of Oahu. *M. oceanicum* was found historically in the mountain ranges of Koolau and Waianae, and is currently restricted to about seven populations in the Koolau Range. Its limited habitat and small scattered populations may affect long-term stability. The species is susceptible to the effects of habitat loss and introduced species. Research should focus on habitat management and protection, and control of invasive species.

CONSERVATION STATUS

Rankings:
Canada – Species at Risk Act: N/A
Canada – provincial status: N/A
Mexico: N/A
USA – Endangered Species Act: Candidate
USA – state status: S2 Imperiled
NatureServe: G2 Imperiled
IUCN Red List: VU Vulnerable

SPECIES PROFILE

DESCRIPTION

Megalagrion oceanicum is in the family Coenagrionidae (pond damsels), and is one of the larger Hawaiian damselflies. Adults are 47-50 mm (1.9-2.0 in.) in length, with a wingspan of 51 to 55 mm (2.0-2.2 in.). Both sexes have prominent striped patterns; males are predominantly red with dark markings on the thorax and the tops of the last several abdominal segments, while females are pale green. Nymphs are also large, reaching up to 30 mm (1.2 in.) and have long grasping legs and three slender, elongated, pointed (lanceolate) gills at the tip of the abdomen (Polhemus & Asquith 1996).

TAXONOMIC STATUS

Megalagrion oceanicum (McLachlan, 1883). The taxonomic status of this species is accepted as valid.

LIFE HISTORY

The predaceous aquatic nymphs inhabit rocks and gravel in swiftly flowing sections of perennial mountain streams or the waterfall faces of small cascades. Older nymphs have been observed

crawling out of the stream channel and foraging on moss pads on rocks and on wet rock walls (Williams 1936). Adults are strong fliers and fly upward into the overhanging canopy when disturbed.

DISTRIBUTION

This species is endemic to Oahu and was historically present in both the Waianae Mountains, where it was first described, and the Koolau Mountain range (Haleauau Stream, Hering Spring stream, Honolulu, Kahamainui Gulch, Kalihi Valley, Kawailoa Stream, Manoa Stream, Moanalua Valley, Palolo Stream, Poamoho Trail, Punaluu, Pupukea, Waiahole Stream, and Waimanalo). It has apparently been extirpated from the Waianae Mountains and is now found only at seven sites in the upper reaches (above 100 meters/300 ft.) of perennial streams on the windward side of the Koolau Range. Individuals are currently collected at higher elevations than was seen historically.

THREATS

M. oceanicum is threatened by habitat loss, including water diversion for agricultural purposes, and the effects of introduced species. Hawaiian damselflies evolved in the presence of few predatory fish, and nymphs exhibit exposed swimming and feeding behaviors that make them vulnerable to predation by poeciliid fish introduced for mosquito control (McPeek 1990). It is possible that populations are negatively impacted by predation from introduced backswimmers (Hemiptera: Notonectidae) and resource competition from introduced caddisflies (Trichoptera). Habitat may also be threatened by the invasive plant California grass (*Brachiaria mutica*), which forms dense stands that can eliminate standing water. Small scattered populations are vulnerable to the effects of inbreeding and decreased genetic diversity, and the impacts of natural events such as drought or hurricanes.

CONSERVATION STATUS

M. oceanicum is a candidate for listing under the Endangered Species Act, and the USFWS is currently developing a proposed listing rule (Federal Register 2007). Published observations and museum collections indicate that this species was well-represented in collections in the early 1900s, and was also collected at lower elevations. It has declined sharply since the 1970s, and is currently restricted to seven populations in the upper drainages of the Koolau mountain range on the windward side. Existing state regulatory mechanisms do not provide sufficient protection.

CONSERVATION NEEDS

Necessary actions include monitoring known populations and searching for new ones, and protecting habitat in regions where the species is known to occur.

RESEARCH NEEDS

Research into habitat management and the interactions and potential competition between the endemic *M. oceanicum* and introduced invertebrate species would be valuable.

RESOURCES

CONTACTS

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WEBSITES

Bishop Museum, http://hbs.bishopmuseum.org/endangered/ocean.html

Hawaii Biodiversity and Mapping Program, http://hbmp.hawaii.edu/printpage.asp?spp=IIODO73100

NatureServe Explorer, www.natureserve.org/explorer/ , accessed December 2007