

Megalagrion pacificum (McLachlan, 1883)
Pacific Hawaiian damselfly
Odonata: Zygoptera: Coenagrionidae



Photo by David Preston, Hawaii Biological Survey

Profile prepared by Celeste Mazzacano, The Xerces Society for Invertebrate Conservation

SUMMARY

Megalagrion pacificum is endemic to the islands of Lanai, Oahu, Kauai, Molokai, Maui, and possibly Hawaii, but is currently known only from a few populations on Molokai and east Maui. 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 pacificum is in the family Coenagrionidae (pond damsels). Adults are small to medium-sized, with a length of 34-37 mm (1.3-1.5 in.) and a wingspan of 33-42 mm (1.3-1.7 in.). Males are dark overall, with slender black bodies, irregular broad dark red stripes on the sides of the thorax, and red bands on the sides and bases of the first few and last few abdominal segments (Polhemus & Asquith 1996). Females are similar in appearance but with light green markings instead of red.

The length of mature nymphs is not known, as only early stages (instars) have been collected. Nymphs have three flattened leaf-like gills at the tip of the abdomen; the gills are longer than the combined length of the last five segments of the abdomen.

TAXONOMIC STATUS

Megalagrion pacificum McLachlan, 1883. The taxonomic status of this species is considered valid.

LIFE HISTORY

Nymphs of *M. pacificum* are found in seepage-fed pools and overflow channels of perennial stream, generally in areas surrounded by dense vegetation. It is thought to prefer side pools on slow-moving streams that contain abundant native grasses and sedges (Daigle 2000). Adults are not fast fliers, and tend to rest on the vegetation close to breeding areas, flying only short distances when disturbed.

DISTRIBUTION

Historically *M. pacificum* was found on most of the major Hawaiian islands, including the following localities: Lihue and Waimea on Kauai; Honolulu and Kawaihoa Stream on Oahu; Kalae and Waiialua Stream on Molokai; Hahalawe, Haipuaena, Iao, Palikea, Puaaluu, Puohokamoa, and Waikamoi Streams on Maui; Lanai; and Hilo on Hawaii (USFWS 2007). Populations of *M. pacificum* have declined drastically since the early 1900s, and the species is extinct on Lanai, Kauai, and Oahu. Recent surveys have found only small populations at restricted locations in streams on Molokai (Pelekunu and Waikolu streams) and Maui (Haipuaena, Hanawi, Keanae, Palikea and Kuhiwa Streams). An additional single population may be present from Maili Stream on Hawaii.

THREATS

M. pacificum is threatened by habitat loss, predation by non-native fish, and the presence of the highly invasive California grass (*Brachiaria mutica*), which forms dense stands that can completely eliminate open water. 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 (McPeck 1990; Englund 1999). It is also possible that populations are negatively impacted by predation from introduced backswimmers (Hemiptera: Notonectidae) and resource competition from introduced caddisflies (Flint *et al.* 2003). Such small scattered populations are also vulnerable to the effects of inbreeding and decreased genetic diversity, as well as the impacts of natural disasters such as drought or hurricanes.

CONSERVATION STATUS

M. pacificum 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 collections indicate that this species was abundant, widespread, and commonly encountered on almost all of the Hawaiian islands. It has declined sharply since the early 1900s and is currently restricted to stream seepage pools and overflow channels in the upper, more remote portions of its historic range that lack non-native fish. Existing state regulatory mechanisms do not provide sufficient protection for this species.

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, stream restoration, and the interactions and potential competition between the endemic *M. pacificum* and introduced aquatic invertebrate species would be valuable.

RESOURCES

CONTACTS

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WEBSITES

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