

***Megalagrion leptodemas* (Perkins 1899)**
Crimson Hawaiian damselfly
Odonata: Zygoptera: Coenagrionidae

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

SUMMARY

Megalagrion leptodemas is endemic to the Hawaiian island of O'ahu, and is considered one of the rarest and most vulnerable of all endemic *Megalagrion* species in Hawaii. *M. leptodemas* was found historically in the mountain ranges of Koolau and Waianae, and is currently restricted to scattered sites in four drainages 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: S1 Critically imperiled

NatureServe: G1 Critically imperiled

IUCN Red List: Endangered

SPECIES PROFILE

DESCRIPTION

Megalagrion leptodemas is in the family Coenagrionidae (pond damsels). It is one of the smaller Hawaiian damselflies, about 36-41 mm in length with a wingspan of 39-42 mm. Males are slender, with brilliant red coloration on the head, thorax, and abdomen, and black markings on the top of abdominal segments five through seven. Females are similar in color but have pale green to grayish-olive markings on the body, and the top of their abdomen is mostly black.

Larvae of this species reach 200 mm (0.79 in.) in length. The three flattened, oval, leaf-like gills at the tip of the abdomen have prominent branching veins, and are darker-colored at the base and paler at the tips.

TAXONOMIC STATUS

Megalagrion leptodemas Perkins 1899. The taxonomic status of this species is accepted as valid.

LIFE HISTORY

The predaceous aquatic nymphs inhabit standing pools in intermittent mid-elevation streams, and slow sections of perennial upland streams. Adults are quick fliers but do not disperse far from the nymphal habitat, patrolling short lengths of the stream and laying eggs in the slow reaches of streams and in stream pools.

DISTRIBUTION

This species is endemic to the island of Oahu, where it was found historically in the northern leeward Koolau Mountains and the Waianae Mountains to the west. Recent extensive surveys have found only four scattered populations in the Koolau Range, suggesting that the Waianae Mountain populations have been extirpated (Polhemus & Asquith 1996).

THREATS

M. leptodemas is threatened by habitat loss and stream alterations, possible habitat competition from introduced caddisflies (Flint *et al.* 2003), and predation by introduced species such as fish and backswimmers (Hemiptera: Notonectidae). Hawaiian damselflies evolved in the presence of few predatory fish, and nymphs typically exhibit exposed swimming and feeding behaviors that make them vulnerable to predation by poeciliid fish introduced for mosquito control. In addition, one population of *M. leptodemas* is in a valley that is undergoing highway construction. Population sizes are so limited that natural events such as drought or hurricane could extirpate remaining populations.

CONSERVATION STATUS

M. leptodemas currently receives no Federal protection. Published observations and museum collections indicate that this species was locally abundant in two Oahu mountain ranges through the 1940s. It has declined sharply in the last 60 years, and is currently restricted to four populations in the Koolau mountain range. It is considered one of the rarest and most threatened endemic Hawaiian damselfly 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 would be valuable. Interactions and potential competition between the endemic *M. leptodemas* and introduced invertebrate species are poorly understood.

RESOURCES

CONTACTS

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REFERENCES

Flint, O. S., R. A. Englund, and B. R. Kumashiro. 2003. A reassessment and new State records of Trichoptera occurring in Hawaii with discussion on origins and potential ecological impacts. Bishop Museum Occasional Papers 73: 31-40.

Hawaiian Terrestrial Arthropoda Checklist. 2nd Edition. 1994. Nishida, G.M. (ed.) Hawaii Biological Survey, Contribution No. 94-04. Bishop Museum. Honolulu, Hawaii. 287 pp.

Perkins R. C. L. 1899. Fauna Hawaiiensis, Sharp D. (ed.).

Polhemus D. A. 1993. Damsels in distress: a review of the conservation status of Hawaiian Megalagrion damselflies (Odonata: Coenagrionidae). Aquatic Conservation 3(4): 343-349.

Polhemus, D.A. and Asquith, A. 1996. *Hawaiian Damselflies. A field identification guide*. Bishop Museum Press, Honolulu.

U. S. Fish and Wildlife Service. 2007. Species assessment for the crimson Hawaiian damselfly. Available at http://ecos.fws.gov/docs/candforms_pdf/r1/I05V_I01.pdf

WEBSITES

Bishop Museum, <http://hbs.bishopmuseum.org/endangered/lepto.html>

Hawaii Biodiversity and Mapping Program,
<http://hbmp.hawaii.edu/printpage.asp?spp=IODO73040>

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