

***Megalagrion nesiotes* (Perkins 1899)**  
**Flying earwig Hawaiian damselfly**  
**Odonata: Zygoptera: Coenagrionidae**

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

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## SUMMARY

*Megalagrion nesiotes* was found historically on the islands of Hawaii and Maui, but is currently known only from a single population on East Maui. Its limited habitat and small population size may affect long-term stability. The species is susceptible to the effects of habitat loss and introduced species. Research should focus on the life history of the species and habitat management and protection.

### 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: SH Historical

NatureServe: G1 Critically imperiled

IUCN Red List: CR Critically Endangered

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## SPECIES PROFILE

### DESCRIPTION

*Megalagrion nesiotes* is in the family Coenagrionidae (pond damsels). Adults are relatively large, from 46-50 mm (1.8-2.0 in.) in length with a 50-53 mm (2.0-2.1 in.) wingspan. Males have a black head, black and blue-grey legs, and a black thorax with broad blue-grey stripes along the sides. The male abdomen is black, with a narrow ring of brown at the base of each segment, and enlarged, pincer-like appendages at tip that give this species its common name. Females are primarily brown, with black stripes along the sides of the thorax and the tips of abdominal segments. There are no records of *M. nesiotes* immatures having been collected or found.

### TAXONOMIC STATUS

*Megalagrion nesiotes* Perkins 1899. The taxonomic status of this species is currently accepted as valid. A species collected on east Maui from the windward slopes of Haleakala were described as *Kilauagrion dinesiotes* by Kennedy (1934), but this species was later synonymized with *M. nesiotes* (Zimmerman 1948).

### LIFE HISTORY

Adults are not associated with standing or flowing water, but prefer upland ridges, wet forests, and steep, moist, fern-covered banks. They are weak fliers and tend to fly only short distances when disturbed, staying low and flying into dense vegetation. The habits of the nymphs are unknown, but based on adult behaviors they are believed to be semi-terrestrial or terrestrial, inhabiting pockets of water at the bases of leaves of tropical plants or wet leaf litter.

### **DISTRIBUTION**

This species was originally known from the islands of Hawaii (Kau, Kilauea, Olaa, and Kona) and windward eastern Maui (Haipuaena, Honomanu, Kailua, and Keanae). The Maui populations were thought to have been extirpated, but intensive surveys resulted in finding a single population of *M. nesiotes* on east Maui in 2002. This population was found along east Wailuaiki Stream, upslope of a busy highway, in what was considered sub-optimal habitat for the species. Additional colonies could be present at intermediate elevations, but these may have escaped detection because the topography of the area makes sampling difficult, as does the tendency of adults to fly low into tangled undergrowth when disturbed. *M. nesiotes* is thought to have been extirpated on Hawaii (USFWS, 2007).

### **THREATS**

This species is at high risk of extinction. *M. nesiotes* is threatened by the effects of invasive species, particularly habitat damage due to feral pigs and possibly from human tourism (hiking) activities in this area. If nymphs of this species are in fact semi-terrestrial, predation from introduced ant species such as the big-headed ant (*Pheidole megacephala*), the long-legged ant (*Anoplolepis longipes*), and the fire ants *Solenopsis geminita* and *Solenopsis papuana* may also be a threat. Natural disasters such as drought or hurricane could threaten the survival of *M. nesiotes*. Such a small population could also suffer loss of genetic variability due to inbreeding, resulting in reduced evolutionary fitness.

### **CONSERVATION STATUS**

*M. nesiotes* is a candidate for listing under the Endangered Species Act, and the USFWS is in the process of developing a proposed listing rule (Federal Register, 2007). This species was known historically from at least three sites on the island of Maui and six sites on the island of Hawaii. It has declined sharply since the 1920s, and is currently restricted to a single population of unknown size on east Maui. Existing state regulatory mechanisms involve managing feral pigs as game animals, but these animals are present in such abundance in inaccessible areas that hunting does not control the pig population.

### **CONSERVATION NEEDS**

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

### **RESEARCH NEEDS**

Little is known about the biology and nymphal habitat of this species. Research into habitat management would also be valuable.

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## **RESOURCES**

## CONTACTS

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## REFERENCES

Daigle, J.J. 2000. The distribution of the Odonata of Hawaii. *Bulletin of American Odonatology* 6(1):1-5.

Federal Register Environmental Documents. 2007. Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions. Vol. 72: 234. Available at <http://www.epa.gov/fedrgstr/EPA-SPECIES/2007/December/Day-06/e23416.htm>.

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

Kennedy, C. H. 1934. Kilauagrion dinesiotes, a new species of dragonfly (Odonata) from Hawaii. *Annals of the Entomological Society of America* 27: 343-345.

Perkins R. C. L. 1899. *Fauna Hawaiiensis*, Sharp D. (ed.). 2: 31-89.

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

U. S. Fish and Wildlife Service. 2007. Species assessment and listing priority assignment form. Available at [http://ecos.fws.gov/docs/candforms\\_pdf/r1/I05X\\_I01.pdf](http://ecos.fws.gov/docs/candforms_pdf/r1/I05X_I01.pdf).

Zimmerman, E. C. 1948. *Insects of Hawaii. Vol. 2 Apterygota – Thysanoptera*. University of Hawaii Press, Honolulu HI.

## WEBSITES

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

Hawaii Biodiversity and Mapping Program,  
<http://hbmp.hawaii.edu/printpage.asp?spp=IODO73060>

NatureServe Explorer, [www.natureserve.org/explorer/](http://www.natureserve.org/explorer/), accessed June 2008