

***Hylaeus paradoxicus* (Perkins, 1899)**  
**(Hymenoptera: Colletidae: Hylaeinae)**

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**SUMMARY**

*Hylaeus paradoxicus*, a large bee endemic to the island of Hawaii in Hawaii, is distinguished by its unusual red abdomen. It is very similar to *H. gliddena*, but lacks facial marks in the male. Formerly abundant in the Kilauea area, it has been recently collected only rarely in the dry forests of Kona.

**CONSERVATION STATUS**

**Xerces Red List Status: Critically Imperiled**

**Other Rankings:**

Canada – Species at Risk Act:	N/A
Canada – provincial status:	N/A
Mexico:	N/A
USA – Endangered Species Act:	None
USA – state status:	None
NatureServe:	GNR
IUCN Red List:	N/A

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**SPECIES PROFILE**

**DESCRIPTION**

**Males:** Black, no facial marks; abdomen dull red, with distinct punctation.

**Females:** As in the male, but larger.

*Hylaeus paradoxicus* is one of the largest Hawaiian species. It is very similar to *H. gliddena*, which is slightly smaller and has facial marks in the male. The females may be indistinguishable.

**TAXONOMIC STATUS**

*Hylaeus paradoxicus* was described as *Nesoprosopis paradoxa* by Perkins (1899). *Nesoprosopis* was reduced to a subgenus of *Hylaeus* by Meade-Waldo (1923). The most recent taxonomic treatment was Daly and Magnacca (2003). *Nesoprosopis erythrodemas*

Perkins was based on slightly smaller females from Kilauea; the name was later synonymized under *H. paradoxicus*, but at least some specimens may have been *H. gliddena*.

### **LIFE HISTORY**

*Hylaeus paradoxicus* inhabits dry to mesic forests. Most recent collections have come from *Chamaesyce olowaluana* (akoko) trees. Nesting habits are not known, but based on related species it probably nests in wood.

### **DISTRIBUTION**

*Hylaeus paradoxicus* was collected abundantly by Perkins in the Kilauea area as well as upper forests of Kona. However, it has not been found at Kilauea in decades and now appears to be restricted to North Kona. Recent collections come from the Puu Waawaa Wildlife Sanctuary and the Pohakuloa Training Area; the *Sophora-Myoporum* (mamane-naio) forests of Mauna Kea and Keauhou (south of Hualalai) have not been searched, and may harbor populations.

### **THREATS**

The rarity of *H. paradoxicus* and lack of knowledge about its requirements make it difficult to assess threats. The decline of such a large and conspicuous species from a well-collected area like Kilauea is unusual, but change has been much greater in dry and mesic forests than wetter areas. In Kona its habitat has been heavily impacted by grazing and other factors, but the large potential area and lack of access makes it difficult to assess how much remains, or what the true distribution of *H. paradoxicus* is. In general, *Chamaesyce olowaluana* appears to support a much larger bee fauna than is found in nearby forest. It is also extremely vulnerable to grazing by feral sheep, which prevents reproduction. As a result, there are relatively few trees in the Puu Waawaa area. Lack of nest sites due to declines in the populations of wood-boring *Plagithmysus* longhorn beetles may also be a factor, but has not been investigated.

### **CONSERVATION STATUS**

This species is extremely rare; it is always found in low numbers, and has a very narrow range. It was inexplicably missing from the original listing of Hawaiian *Hylaeus* as Category 2 Candidate Endangered Species.

### **CONSERVATION NEEDS**

The top priority is to identify extant populations and document the continued existence of the species. Both sites where *H. paradoxicus* is known to be found are protected under the auspices of the State of Hawaii or the U.S. Army, though they may not be actively managed for habitat conservation; other populations may be found on private land. The trees that *H. paradoxicus* were collected on at Puu Waawaa lie just outside a sheep fence; including them in the fenced area and/or planting *C. olowaluana* within the enclosure would help greatly. All areas are highly vulnerable to fire.

### **RESEARCH NEEDS**

Identify reasons for rarity and locate new populations.

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## RESOURCES

### CONTACTS

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### REFERENCES

Daly, H. V., and K. N. Magnacca. 2003. *Insects of Hawaii, Vol. 17: Hawaiian Hylaeus (Nesoprotopis) Bees (Hymenoptera: Apoidea)*. University of Hawaii Press, Honolulu. 234 pp.

Meade-Waldo, G. 1923. Hymenoptera, fam. Apidae, subfam. Prosopidae, fasc. 181. Pp. 1-45 in P. Wytsman (ed.), *Genera Insectorum*. L. Desmet-Verteneuil, Brussels.

Perkins, R. C. L. 1899. Hymenoptera, Aculeata. Pp. 1-115 in D. Sharp (ed.), *Fauna Hawaiiensis*, Vol. 1. Cambridge University Press, Cambridge, United Kingdom.

### WEBSITES

This bee has no web presence.