U.S. FISH AND WILDLIFE SERVICE SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

Scientific Name:

Megalagrion xanthomelas

Common Name:

Orangeblack Hawaiian damselfly

Lead region:

Region 1 (Pacific Region)

Information current as of:

06/19/2014

Status/Action

___ Funding provided for a proposed rule. Assessment not updated.

___ Species Assessment - determined species did not meet the definition of the endangered or threatened under the Act and, therefore, was not elevated to the Candidate status.

___ New Candidate

_X_ Continuing Candidate

___ Candidate Removal

> ___ Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status
>
> ___ Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species
>
> ___ Range is no longer a U.S. territory
>
> ___ Insufficient information exists on biological vulnerability and threats to support listing
>
> ___ Taxon mistakenly included in past notice of review
>
> ___ Taxon does not meet the definition of "species"
>
> ___ Taxon believed to be extinct
>
> ___ Conservation efforts have removed or reduced threats

___ More abundant than believed, diminished threats, or threats eliminated.

Petition Information

___ Non-Petitioned

_X_ Petitioned - Date petition received: 05/11/2004

90-Day Positive:05/11/2005

12 Month Positive:05/11/2005

Did the Petition request a reclassification? **No**

For Petitioned Candidate species:

Is the listing warranted(if yes, see summary threats below) **Yes**

To Date, has publication of the proposal to list been precluded by other higher priority listing? **Yes**

Explanation of why precluded:

Higher priority listing actions, including court-approved settlements, court-ordered and statutory deadlines for petition findings and listing determinations, emergency listing determinations, and responses to litigation, continue to preclude the proposed and final listing rules for this species. We continue to monitor populations and will change its status or implement an emergency listing if necessary. The Progress on Revising the Lists section of the current CNOR (http://endangered.fws.gov/) provides information on listing actions taken during the last 12 months.

Historical States/Territories/Countries of Occurrence:

- **States/US Territories**: Hawaii
- **US Counties**: Hawaii, HI, Honolulu, HI, Kauai, HI, Maui, HI
- **Countries**: United States

Current States/Counties/Territories/Countries of Occurrence:

- **States/US Territories**: Hawaii
- **US Counties**: Hawaii, HI, Honolulu, HI, Kauai, HI, Maui, HI
- **Countries**: United States

Land Ownership:

Of the 16 streams where this species occurs, 14 are on State owned lands, one stream is on Department of Defense (DOD) land, and one is on privately owned land.

Lead Region Contact:

ARD-ECOL SVCS, Jesse D'Elia, 5032312349, jesse_delia@fws.gov

Lead Field Office Contact:

PACIFIC ISLANDS FISH AND WILDL OFC, Kristi Young, 808-792-9419, kristi_young@fws.gov

Biological Information

Species Description:

The orangeblack Hawaiian damselfly (*Megalagrion xanthomelas*) is somewhat small in size. Males are bright red in color while females are pale tan in color. Both sexes exhibit strong patterns including striping. The adults measure from 1.3-1.5 inches (in) (33-37 millimeters (mm)) in length and have a wingspan of 1.4-1.6 in (35-40 mm). Immatures of this species exhibit flattened, leaf-like gills (Asquith and Polhemus 1996, p. 91).

Taxonomy:

The orangeblack Hawaiian damselfly was first described by Selys-Longchamps (1876), and the species is recognized as a distinct taxon. Selys-Longchamps is the most recent and accepted taxonomy for this species.

Habitat/Life History:

Historically, the orangeblack Hawaiian damselfly was Hawaii's most abundant species of damselfly, and it utilized a variety of aquatic habitats for breeding sites. In 1913, Perkins described it as a common insect in Honolulu gardens and in lowland districts generally, not usually partial to the mountains, though in the Kona district of Hawaii it is common about stagnant pools up to an elevation of about 914 meters (m) (3,000 feet (ft)). It is very numerous in individuals under conditions totally changed from natural. The naiads (aquatic nymphs) of this species are active swimmers and rest on exposed areas of the bottom on submerged vegetation (Williams 1936). They prefer standing or very slow moving bodies of water, and have been observed breeding in garden pools, large reservoirs, pools of an intermittent stream, a pond formed behind a cobble bar at the seaward terminus of a large stream, and coastal springs, fishponds and freshwater marshes (Polhemus 1995).

Historical Range/Distribution:

Historically, this species probably occurred on all the major islands except Kahoolawe (Perkins 1913; Kennedy 1917; Zimmerman 1948a; Polhemus 1995). Its range on Kauai is unknown. On Oahu, it was recorded from Honolulu, Kaimuki, Koko Head, Pearl City, Waialua, the Waianae mountains (Polhemus 1995), and Waianae (Williams 1936). On Molokai, it was known from the following localities: Kainalu, Meyer's Lake on the Kalaupapa peninsula, Kaunakakai, Mapulehu, and Palaau (Polhemus 1995). On Maui, it was recorded from an unspecified locality in the West Maui Mountains (Polhemus 1995; Polhemus et al. 1999). On Hawaii, it was known from Hilo, Kona, Naalehu, and Panaewa Forest Reserve (Polhemus 1995).

Current Range Distribution:

This species is now believed to be extirpated from Kauai (Asquith and Polhemus 1996, p. 91). Until recently, the last report of the orangeblack Hawaiian damselfly on Oahu was in 1935 (Williams 1936), and it was believed extirpated on this island (Polhemus 1993). In 1993, a very small population was discovered existing in pools of an intermittent stream at the Tripler Army Medical Facility (Englund 2001). This is the only known population of this species on Oahu. Populations are known from Molokai at the mouths of Pelekunu and Waikolu streams, and at the Palaau wetlands on the south coast (Polhemus 1995). On Lanai, a large population occurs in an artificial pond at Koele (Polhemus 1995). The species is present on the island of Maui at Ukumehame Stream (west Maui) and near anchialine pools located at La Perouse Bay (leeward east Maui) (Polhemus et al. 1999). Several large populations exist in coastal wetlands on Hawaii in the following

localities: Anaehoomalu Bay, Hawa Bay, Hilea Stream, Hilo, Honokohau, Kiholo Bay, Ninole Springs (Polhemus 1995), Onomea Bay (Asquith 1995), Whittington Beach (Polhemus 1995), Keaukaha (Conry, in litt. 2012), Kapoho (Conry, in litt. 2012), Honaunau (Conry, in litt. 2012), and Pahue Bay (Conry, in litt. 2012) .

Population Estimates/Status:

Quantitative population estimates are unavailable for this species but it has been described as ranging from rare to relatively abundant in various streams across the State (Englund and Arakaki 2003).

Threats

A. The present or threatened destruction, modification, or curtailment of its habitat or range:

Freshwater habitats on all the main Hawaiian Islands have been severely altered and degraded because of past and present land and water management practices including agriculture, urban development, development of ground water, perched aquifer and surface water resources (Harris et al. 1993; Meier et al. 1993).

Extensive modification of lentic (standing water) habitats in the Hawaiian Islands began about 1100 AD with a rapid population increase among native Hawaiians (Kirch 1982). Hawaiians cultivated *Colocasia esculenta* (taro) by creating shallow, walled ponds called loi in marshes and riparian areas (Handy and Handy 1972). By 1778, virtually all valley bottoms with permanent stream flow and most basin marshes were converted to irrigated taro cultivation (Handy and Handy 1972). Hawaiians also modified wetlands by constructing fishponds, many of which were primarily fresh water, fed by streams or springs (Summers 1964). Despite this habitat modification by early Hawaiians, many areas of extensive marshland remained intact and were utilized by the native damselflies.

Eventually, many of the wetlands formerly used for taro were drained and filled for dry-land agriculture (Stone 1989; Meier et al. 1993). In addition, marshes are slowly filled and converted to meadow habitat due to increased sedimentation resulting from increased storm water runoff from upslope development and blockage of downslope drainage (Wilson Okamoto and Associates, Inc. 1993).

Presently, the most significant threat to the remaining natural ponds and marshes in Hawaii is the nonnative species *Brachiaria mutica* (California grass). The area of origin of this sprawling perennial grass is unknown, but it was first noted on Oahu in 1924 and now occurs on all the major islands (O'Connor 1990). This plant forms dense, monotypic stands that can completely eliminate any open water by layering of its trailing stems (Smith 1985).

Similar to the loss of wetlands in Hawaii, the loss of streams has been significant and began with the early Hawaiians who modified stream systems by diverting water to irrigate taro. However, these Hawaiian-made diversions were closely regulated and were not allowed to take more than half the stream flow, and diversions were typically periodic to flood taro rather than continuous (Handy and Handy 1972).

The advent of plantation sugarcane cultivation in 1835 led to more extensive stream diversions. These systems were typically designed to tap water at upper elevations greater than 984 ft (> 300 m) by means of a concrete weir in the stream. All or most of the low or average flow of the stream was diverted into fields or reservoirs (Takasaki et al. 1969; Harris et al. 1993). By the 1930s, major water diversions had been developed on all the major islands, and currently one third of Hawaii's perennial streams are diverted (Hawaii Stream Assessment 1990).

In addition to diverting water for agriculture and domestic water supply, streams have also been diverted for use in hydroelectric power (Hawaii Stream Assessment 1990). Surface flow has also been diverted into stream channels, and the perched aquifers which feed the streams have been tapped by means of tunnels (Stearns and Vaksvik 1935; Stearns 1985). Many of these aquifers are the sources of springs, which contribute flow to streams. The draining of these aquifers may cause springs to become dry (Stearns and Vaksvik 1935).

In addition to the loss of streams, most remaining streams have been and continue to be seriously degraded. Channelization of streams has not been restricted to lower reaches. The channelization process results in removal of riparian vegetation, increased velocity, increased illumination, and higher water temperatures (Parrish et al. 1984). These conditions can make the channels unsuitable as habitat for this species.

B. Overutilization for commercial, recreational, scientific, or educational purposes:

For commercial purposes, currently only a State Commercial Marine License a Hawaii Division of Forestry and Wildlife-issued Native Invertebrate Research and Collecting permit is required to collect anchialine pool shrimp. All terrestrial and aquatic invertebrates (including anchialine pond shrimp) are protected under the State of Hawaii Revised Statutes (1993) Chapter 195D-4-f License; and (2) Department of Land and Natural Resources, Chapter 124: Indigenous Wildlife, Endangered and Threatened Wildlife, and Introduced Wild Birds (Conry, in litt. 2012). Collection is prohibited in State NARs but not in the State Parks or City and County property.

C. Disease or predation:

Predation by nonnative fish and nonnative aquatic invertebrates on the orangeblack Hawaiian damselfly is a significant threat. Similar to the aquatic insects, Hawaii has a depauperate freshwater fish fauna with only five native species comprised of gobies (Gobiidae) and sleepers (Eleotridae) that occur on all the major islands. Information on these five species indicates that the Hawaiian damselflies probably experienced limited natural predation pressure from the native fishes (Kido 1997a, b; Englund 1999). Conversely, fish predation has been an important factor in the evolution of behavior in damselfly naiads in continental systems (Johnson 1991). Some species of damselflies, including the native Hawaiian species, are not adapted to cohabitate with some fish species, and are found only in bodies of water without fish (Henrickson 1988; McPeek 1990a). The naiads of these species tend to occupy more exposed positions and engage in conspicuous foraging behavior, thereby being susceptible to fish (Macan 1977; McPeek 1990b). Hawaiian damselflies evolved with few, if any, predatory fish and the exposed behavior of most of the fully aquatic species, including the orangeblack Hawaiian damselfly, makes them particularly vulnerable to predation by nonnative fish introductions (Englund 1999).

The introduction of non-native fish has been implicated in the extirpation of a related damselfly, the Pacific Hawaiian damselfly (*Megalagrion pacificum*), from Oahu, Kauai, and Lanai, and from many streams on the remaining islands (Moore and Gagne 1982). In 1905, two species, the mosquito fish (*Gambusia affinis*) and the sailfin molly (*Poecilia latipinna*), were introduced for biological control of mosquitoes (Van Dine 1907). In 1922, three additional species were established for mosquito control, the green swordtail (*Xiphophorus helleri*), the moonfish (*Xiphophorus maculatus*) and the guppy (Poecilia reticulata). By 1935, the orangeblack Hawaiian damselfly was found only in waters without introduced fish (Williams 1936; Zimmerman 1948b; Polhemus 1993; Englund 1998). Over 70 species of fish have been introduced into Hawaiian freshwater habitats (Devick 1991; Staples and Cowie 2001; Englund 2004). The impact of fish introductions prior to 1900 cannot be assessed because this predated the initial collection of damselflies in Hawaii (Perkins 1913).

Beginning about 1980, a large number of new fish introductions began in Hawaii, originating primarily from the aquarium fish trade (Devick 1991). This recent wave of fish introductions on Oahu corresponded with the drastic decline and range reduction of related damselfly species (oceanic Hawaiian damselfly (*Megalagrion oceanicum*), crimson Hawaiian damselfly (*M. leptodemas*), and the blackline Hawaiian damselfly (*M.*

nigrohamatum nigrolineatum)). Currently, these damselflies occur only in drainages or higher parts of stream systems where nonnative fish are not yet established (Englund and Polhemus 1994; Englund 2004). On Oahu, the orangeblack Hawaiian damselfly species is now reduced to habitat less than 312 ft (95 m) in length that lacks invasive fish species (Englund 2004).

Backswimmers are aquatic true bugs (Heteroptera) in the family Notonectidae, so called because they swim upside down. Backswimmers are voracious predators and frequently feed on prey much larger than themselves, such as tadpoles, small fish, and other aquatic invertebrates including damselfly naiads (Borror et al. 1989). Backswimmers are not native to Hawaii, but several species have been introduced in recent times. *Buenoa pallipes* (Fabricus) (no common name (NCN)) has been known from Hawaii since 1900 (Zimmerman 1948a) and has been recorded from all the major islands except Lanai (Nishida 1994). This species is found in streams and can be abundant in lowland ponds and reservoirs. It feeds on any suitably sized insect, including damselfly naiads (Polhemus 1995). More recently, two additional species of backswimmers have become established in Hawaii (Polhemus 1995). Anisops kuroiwae (NCN) was first collected in 1991 and is known only from Maui. *Notonecta indica* (NCN) was first collected on Oahu in the mid 1980s and is presently known from Maui, Hawaii, and Oahu. Species of *Notonecta* are known to prey on damselfly naiads and the mere presence of this predator in the water can cause naiads to reduce foraging (Heads 1985) which can reduce growth, development, and survival (Heads 1986). Backswimmers pose a threat to the orangeblack Hawaiian damselfly.

D. The inadequacy of existing regulatory mechanisms:

The State of Hawaii considers all natural flowing surface water (streams, springs and seeps) as State property (Hawaii Revised Statutes 174c 1987), and the Hawaii Department of Land and Natural Resources has management responsibility for the aquatic organisms in these waters (Hawaii Revised Statutes Annotated, 1988, Title 12; 1992 Cumulative Supplement). Thus, damselfly populations associated with streams, seeps and springs are under the jurisdiction of the State of Hawaii, regardless of the ownership of the property across which the stream flows. This includes all populations of the orangeblack Hawaiian damselfly.

State regulatory mechanisms currently in effect do not provide adequate protection for native Hawaiian damselflies or their habitat. The State Water Code does not afford adequate protection from the adverse effects of water development projects. The State of Hawaii manages the use of surface and ground water resources through the Commission on Water Resource Management (Water Commission), as mandated by the 1987 State Water Code (State Water Code, Hawaii Revised Statutes Chapter 174C-71, 174C-81-87, and 174C-9195 and Administrative Rules of the State Water Code, Title 13, Chapters 168 and 169). In the State Water Code, there are no formal requirements that project proponents or the Water Commission protect the habitats of fish and wildlife prior to issuance of a permit to modify surface or ground water resources.

The maintenance of instream flow, which is required to protect the habitat of damselflies and other aquatic wildlife, is regulated by the establishment of standards on a stream-by-stream basis (State Water Code, Hawaii Revised Statutes Chapter 174C-71 and Administrative Rules of the State Water Code, Title 13, Chapter 169). Currently, the interim instream flow standards represent the existing flow conditions in streams in the State as of June 15, 1988, for Molokai, Hawaii, Kauai and east Maui, and October 19, 1988, for west Maui and leeward Oahu (Administrative Rules of the State Water Code, Title 13, Chapter 169-44-49). However, the State Water Code does not provide for permanent or minimal instream flow standards for the protection of aquatic wildlife. Instead, modification of instream flow standards and stream channels can be undertaken at any time by the Water Commission or via public petitions to revise flow standards or modify stream channels in a specified stream (Administrative Rules of the State Water Code, Title 13, Chapter 169-36). Additionally, the Water Commission must consider economic benefits gained from out-of-stream water uses, and is not required to balance these benefits against instream benefits to aquatic fish and wildlife. Consequently, any stabilization of stream flow for the protection of Hawaiian damselfly habitat is subject to modification at a future date.

The natural value of Hawaii's stream systems have been recognized under the State of Hawaii Instream Use Protection Program (Administrative Rules of the State Water Code, Title 13, Chapter 169-20(2)). In the Hawaii Stream Assessment Report (1990), prepared in coordination with the National Park Service, the State Water Commission identified high quality rivers or streams, or portions of rivers or streams that may be placed within a wild and scenic river system. This report recommended that streams meeting certain criteria be protected from further development. However, there is no formal or institutional mechanism within the Water Code to designate and set aside these streams, or to identify and protect stream habitat for Hawaiian damselflies.

Existing Federal regulatory mechanisms that may protect Hawaiian damselflies and their habitat are also inadequate. The Federal Energy Regulatory Commission (FERC) has very limited jurisdiction in Hawaii. Hydroelectric power projects in Hawaii are not on navigable water, public lands, or Federal trust lands; do not use surplus water or water power from a Federal government dam; and do not affect the interests of interstate or foreign commerce. Thus, licensing of hydroelectric projects do not come under the purview of FERC. However, hydropower developers in Hawaii may voluntarily seek licensing under FERC.

The U.S. Army Corps of Engineers (COE) also has some regulatory control over modifications of freshwater streams in the United States. For modifications (i.e., discharge of fill) of streams with an average annual flow greater than five cubic feet per second (cfs), the COE can issue individual permits under section 404 of the Clean Water Act. These permits are subject to public review and must comply with the Environmental Protection Agency's 404(b)(1) guidelines and public comment requirements. However, in issuing these permits, the COE does not establish instream flow standards as a matter of policy. The COE normally considers that the public interest for instream flow is represented by the State water allocation rights or preferences (Regulatory Guidance Letter No 85-6), and project alternatives that supersede, abrogate, or otherwise impair the State water quantity allocations are not normally addressed as alternatives during permit review.

In cases where the COE district engineer does propose to impose instream flow standard on an individual permit, this flow standard must reflect a substantial national interest. Additionally, if this instream flow standard is in conflict with a State water quantity allocation, then it must be reviewed and approved by the Office of the Chief Engineer in Washington, D.C. (Regulatory Guidance Letter No 85-6).

The COE may also authorize the discharge of fill into streams with an average annual flow of less than five cfs. These discharges are covered under a nationwide permit (33 CFR 330 Appendix A, Nationwide Permit 26). This permit is designed to expedite small-scale activities that the COE considers to have only minimal environmental impacts (33 CFR 330.1(b)). The U.S. Fish and Wildlife Service (FWS) and State Department of Land and Natural Resources have only 15 days to provide substantive site-specific comments prior to the issuance of a nationwide permit (33 CFR 330 Appendix A, Nationwide Permit Condition 13). Given the complexity of the impacts on Hawaiian damselflies from stream modifications and surface water diversions, the remoteness of project sites, and the types of studies necessary to determine project impacts and mitigation, this limited comment period does not allow for an adequate assessment of impacts.

The orangeblack Hawaiian damselfly is not currently protected under Hawaiis endangered species law (HRS, Sect. 195-D) or the Federal Endangered Species Act (16 U.S.C. §1531-1544).

E. Other natural or manmade factors affecting its continued existence:

Competition for space and resources by a nonnative aquatic insect group, the Trichoptera (or caddisflies), is a potential threat to the orangeblack Hawaiian damselfly. This nonnative aquatic insect group is found on all of the main Hawaiian Islands. As of 2001 there were four species of this nonnative group of inverts in the islands (Flint et al. 2003). It is suspected that the introduced caddisflies are adversely impacting native aquatic invertebrate populations either through competition for space and resources, or due to the caddisflies large body size and sheer abundance in Hawaiian streams (Flint et al. 2003).

In addition, large-scale water withdrawal from underground water sources may impact anchialine pools. This underground water withdrawal may increase salinity levels and negatively impact species that rely on the delicate balance of the mixohaline habitats (Conry, in litt. 2012).

Conservation Measures Planned or Implemented :

The FWS has cooperated with the Office of Veterans Affairs and the U.S. Army to protect the last remaining population on Oahu. Mitigation measures were successful in preventing the extirpation of the population during a construction project. The stream is now artificially fed water thorough a pipe maintained by the U.S. Army (Ogden Environmental and Energy Service 1994). The FWS also began habitat studies of the area in the summer of 2009.

Through funding by the FWS and in cooperation with entomologists of the Bishop Museum, a translocation effort began July 2003 to establish a second population of this species within a nearby stream located in Makiki, island of Oahu. The translocation site lacked alien predatory fish and crustaceans (including the introduced shrimp, *Neocaridina denticulate sinensis*), contained the native shrimp, *Atyoida bisulcata*, and was remote enough to minimize human disturbances. On July 18, 2003, 35 adults and 30 late instars were collected from the last remaining population on Oahu and transported to an unnamed tributary of Makiki Stream. On August 18, 2003, a single marked male was seen on vegetation close to the translocation site. An additional 33 adults were collected from the last remaining population on Oahu and moved to Makiki on August 25, 2004 (Preston et al. 2005). However, in October 2004, a large storm flooded the area and damselflies were not relocated at this site after that event (Preston et al. 2005).

Work is proceeding on preparing additional translocation sites on Oahu and on the monitoring of the existing population. At the Pearl Harbor National Wildlife Refuge Kalaeloa Unit, restoration of the anchialine pool system there has been completed. Translocation of orangeblack damselfly adults, naiads, and eggs from the Tripler site to the Kalaeloa Refuge Unit was completed between the months of July and December 2010. A final report from Bishop Museum is expected by the end of September 2011. Another potential translocation site has been identified on State Forest Reserve land in Moanalua Valley and preliminary surveys were completed during June and July of 2010. A final report with recommendations is expected in December 2011. A cooperative agreement with the landowner to allow for the translocation of the orangeblack damselfly to three manmade pools in Waimea Valley is pending. A fourth possible translocation site in the Ewa plains at a mitigated wetland site is under consideration.

Summary of Threats :

Based on our evaluation of habitat degradation and loss of streams and the effects of predation by nonnative fish and other nonnative invertebrates, we conclude there is sufficient information to develop a proposed listing rule for this species due to the present and threatened destruction, alteration, or curtailment of its habitat and range, and the threat of predation by nonnative fish and nonnative invertebrates. In addition, competition for space and resources by nonnative invertebrates may also threaten the orangeblack Hawaiian damselfly. We find that this species is warranted for listing throughout all its range, and, therefore, find that it is unnecessary to analyze whether it is threatened or endangered in a significant portion of its range.

For species that are being removed from candidate status:

_____ Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions(PECE)?

Recommended Conservation Measures :

- Survey all current and historic locations for existing populations of the orangeblack Hawaiian damselfly and for potential habitat.
- Conduct population studies at current known locations.
- Determine genetic relationships between current populations.
- Develop and implement nonnative fish removal and control program.
- Develop and implement nonnative invertebrate removal and control program.
- Conduct stream restoration at potential translocation sites.

Priority Table

Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/Population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/Population	6
Moderate to Low	**Imminent**	Monotypic genus	7
		Species	**8**
		Subspecies/Population	9
	Non-Imminent	Monotype genus	10
		Species	11
		Subspecies/Population	12

Rationale for Change in Listing Priority Number:

Magnitude:

This species is moderately threatened throughout its range from habitat loss and degradation due to land and water management programs, predation by nonnative fish and invertebrates, and competition for resources with nonnative caddisflies. These threats occur in varying degrees range-wide. Nonnative fish and invertebrates occur in all drainages throughout the range of the orangeblack Hawaiian damselfly. Currently, there are no efforts in place to control or eradicate nonnative fish or invertebrates, or to stop the loss and degradation of habitat.

Imminence :

The primary threats to this species from habitat degradation and predation by nonnative fish and nonnative invertebrates are imminent because they are ongoing. Water is still being diverted for agricultural use and channelized streams remain channelized. In addition, all drainages contain both predatory nonnative fish and nonnative invertebrates.

__Yes__ Have you promptly reviewed all of the information received regarding the species for the purpose of determination whether emergency listing is needed?

Emergency Listing Review

__No__ Is Emergency Listing Warranted?

The species does not appear to be appropriate for emergency listing at this time because the immediacy of the threats is not so great as to imperil a significant proportion of the taxon within the time frame of the routine listing process. If it becomes apparent that the routine listing process is not sufficient to prevent large losses that may result in this species' extinction, then the emergency rule process for this species will be initiated. We will continue to monitor the status of the orangeblack Hawaiian damselfly as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

Description of Monitoring:

We conducted literature searches for recent articles on this species and contacted relevant species experts. The U.S. Geological Survey-Biological Resources Discipline (USGS-BRD), U.S. Army, State officials with the Department of Land and Natural Resources, Bishop Museum, and University of Hawaii researchers were contacted regarding the current status of this species. No additional information on the species status was provided over the past year.

This level of monitoring is appropriate to update the status of the species because a thorough literature search was conducted as well as relevant species experts contacted.

List of Experts Contacted:

Name Date Affiliation
Michele Mansker December 6, 2011 U.S. Army
David Foote February 23, 2011 USGS-BRD
David Preston December 6, 2011 Bishop Museum

The Hawaii Biodiversity and Mapping Program (HBMP) lists this species as critically imperiled to vulnerable (HBMP 2006). This species is listed as vulnerable (VU) in the International Union for Conservation of Nature and Natural Resources (IUCN) Red Data List database (IUCN 2006). The orangeblack Hawaiian damselfly is included in the list of species in Hawaiis 2005 Comprehensive Wildlife Conservation Strategy (Mitchell et al. 2005). In addition, in March 2007, the State of Hawaii initiated a separate strategic plan focusing exclusively on invertebrates. It is expected that the orangeblack Hawaiian damselfly will be one of the species covered by the new plan (Mitchell et al. 2005).

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment:

none

Indicate which State(s) did not provide any information or comment:

Hawaii

State Coordination:

On February 20, 2013, we provided the Hawaii Division of Forestry and Wildlife with copies of our most recent candidate assessments for their review and comment. No additional information or comments on this species were received from the State. We are in frequent contact with State biologists and believe this assessment contains the most recent available information on the species.

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In Litteris

Conry, P.J. CNOR 2012, Response to request for comments on USFWS species assessment and listing priority assignment forms, April 9, 2012.

Approval/Concurrence:

Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve:  06/18/2014
Date

Concur:  11/18/2014
Date

Did not concur: _____ _____
Date

Director's Remarks: