



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

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May 31, 2012

TO: Natural Area Reserves System Commission

FROM: Paul J. Conry, Administrator  
Division of Forestry and Wildlife

A handwritten signature in blue ink that reads "Paul J. Conry".

SUBJECT: Proposal to Designate Kaluanui as a Natural Area Reserve

At the request of the NARS Commission meeting of August 25, 2009, the Division of Forestry and Wildlife conducted additional surveys and site visits of the proposed Kaluanui Natural Area Reserve (NAR). The purpose of these trips was to assess ecosystem health, confirm rare species populations, and plan management priorities.

**Rare species:**

*Plants:* A three-day survey in May 2011 of the northeast section of the proposed reserve, conducted by M. LeGrande and J. Lau, located nine rare plants, three of which are Plant Extinction and Prevention program (PEP) priorities, as there are fewer than 50 known individuals left in the wild. The species, all extremely rare, include *Anoechtochilus sandvicensis* (SOC), *Chamaesyce rockii* (E), *Cyanea acuminata* (E), *Cyanea calycina* (C), *Cyanea stjohnii* (E, PEP), *Phyllostegia hirsute* (E, PEP), *Platydesma cornuta cornuta* (E, PEP), *Pteris lydgatei* (E, PEP), and *Tetraplasandra gymnocarpa* (E). Also located on the trip were *Zanthoxylum kauense*, *Doodia lyonii*, and *Embelia pacifica*, rare native plant species not formally listed.

*Snails:* A three-day survey in May 2011 by V. Costello, A. Hardman, E. Yuen, and J. Rohrer, and a follow-up survey in August 2011 located multiple populations of endangered *Achatinella* snails. Samples are being analyzed to confirm the species, although it is believed that they are *A. sowerbyana* and *A. bulimoides*. Previous to this trip, known wild *A. sowerbyana* individuals numbered 755 snails, and known wild *A. bulimoides* snails numbered five individuals,<sup>i</sup> so finding additional populations and individuals is especially significant for these extremely rare species.

*Aquatic insects:* A report from a three-day survey in May 2011 by D. Polhemus found that three species of native Hawaiian *Megalagrion* damselflies (*Megalagrion oceanicum*, *Megalagrion nigrohamatum nigrolineatum*, and *Megalagrion hawaiiense*) still occur in the upper Kalaunui catchment. In addition, two dragonfly species, the endemic *Anax strenuus* and the indigenous *Anax junius*, were also observed. No invasive fishes or prawns were seen in the upper stream reaches. These results indicate that the upper Kaluanui catchment retains high aquatic habitat quality, and native aquatic biodiversity has not been significantly degraded since a previous survey 18 years earlier, which noted similar outstanding biological values for this stream. The stream thus remains one of the most biologically intact on the island of Oahu.<sup>ii</sup>

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CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
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**Ecosystem Health:**

A report from a three-day survey in May 2011 indicates that native forest habitat quality is very high throughout most of Kaluanui except for sections along the stream (especially middle drainage) and in some makai sections near the Castle trail that are overgrown with *Psidium*. Populations of *Clidemia* and *Pterolepis* are found throughout the area but thickest in areas disturbed by pigs. Smaller incipient weed populations include *Shefflera*, *Angiopteris*, *Cyathea*, *Trema*, and *Arthrostema*.

There was high pig activity along the upper Punaluu Valley rim, makai sections, especially along the stream, and other moderate terrain plateaus. *Psidium* populations correspond to areas of high pig activity. In the plateaus, *Axonopus fissifolius* is also common where pigs have made trails, wallows, and large clearings.

**Management Planning:**

Control of pigs to protect the native ecosystem and watershed values of the area is a priority, in addition to weed control and rare species restoration.

The proposed NAR is located in the very highest rainfall zone of Oahu, with native forest-dominated plateau sections that are ideal for replenishing groundwater aquifers and streams. Protection of the forest and aquatic ecosystems will also protect a critical watershed and Oahu's water supply. Monitoring water quality and quantity will indicate the hydrological response of proposed management actions.

**Other management considerations:** There are no maintained public trails to this area. To reach the proposed NAR requires a two-three hour hike and elevation gains of over 2,000 feet (and traverses private property so hiking requires landowner permission). This area is currently closed to the public as part of the safety closure for Sacred Falls State Park, where rockslide and other dangers still persist further down the valley. The proposed NAR is not a public hunting area.

**Recommendation:** The Division of Forestry and Wildlife recommends this area become the Kaluanui Natural Area Reserve to manage this highly significant watershed and native ecosystem area.

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<sup>i</sup> Oahu Army Natural Resource Program Staff. 2010. Status Report for the Makua and Oahu Implementation Plans. [http://manoa.hawaii.edu/hpicesu/dpw\\_mit.htm](http://manoa.hawaii.edu/hpicesu/dpw_mit.htm)

<sup>ii</sup> D. Polhemus. 2011. A Supplementary Aquatic Insect Re-survey of Kaluanui Stream, Oahu, Hawaii. Final Report. U.S. Fish and Wildlife Service. Prepared for the Division of Forestry and Wildlife, Natural Area Reserves System, Hawaii State Department of Land and Natural Resources, Honolulu, HI.