



WHY IT IS NECESSARY TO LIST THE WĒKIU BUG AS AN ENDANGERED SPECIES WITH CRITICAL HABITAT DESIGNATION

JUNE 2003

The wēkiu bug is naturally rare, highly specialized, and geographically restricted.

✧ The wēkiu bug was discovered in 1979 by Francis G. Howarth, Steven Lee Montgomery, and William P. Mull. This unique Hawaiian animal is found only on the summit of Mauna Kea, Island of Hawai'i, above 11,000 feet.

✧ The wēkiu bug evolved, and is highly specialized to survive in the summit alpine ecosystem. Antifreeze properties in the wēkiu bug's blood allow it to inhabit this harsh zone.

✧ The wēkiu bug lives in loosely compacted cinder and other volcanic rock. Tephra cinders – essential habitat for the wēkiu bug – are easily crushed to dust-size particles by land development, heavy equipment, and vehicular traffic, rendering it unusable by the wēkiu bug.

✧ The wēkiu bug also depends on the snow as a foraging ground for insects and other organic matter blown up the mountain from lower elevations.

Habitat destruction is the primary threat to the wēkiu bug.

✧ The Mauna Kea Science Reserve is dedicated to astronomy development and incorporates almost all of the wēkiu bug's known habitat.

✧ Since the first modern road to the Mauna Kea summit was bulldozed, at least 62 acres of wēkiu bug habitat, including prime habitat on Pu'u Hau'oki and Pu'u Wēkiu have been destroyed by astronomy development.

✧ The Institute for Astronomy considers proposals for astronomy development on Mauna Kea on a regular basis. At least two-thirds of the wēkiu bug's potential habitat are unprotected from proposed and potential astronomy development.

✧ New and replacement telescopes, and associated infrastructure threaten the wēkiu bug and its habitat. Proposals to construct interferometers and submillimeter arrays with up to 40 antennae arrays are also anticipated. Submillimeter arrays can have up to 20 times the surface impact of construction of standard telescopes.

✧ Telescope construction on the summit involves excavating and dumping volcanic material; grading and filling; drilling for piles and piers; pouring of massive amounts of concrete for piles, piers, footings, and other foundations; paving roads and foot paths; directing runoff from paved surfaces to collection basins and dry wells, and allowing runoff to percolate into the subsurface; constructing septic systems and leach fields; and excavating huge networks of communication and utility conduit trenches. Heavy equipment used in astronomy development includes bulldozers, mobile cranes, air compressors, welding machines, forklifts, and large trucks.

✧ Human activities related to the telescopes, tourism, and recreation; off-road vehicles; predation and competition by alien species; and shifts in global climate toward warmer winters and less snowfall on Mauna Kea, pose additional threats to the wēkiu bug and its habitat.

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Existing laws and regulations are inadequate to protect the wēkiu bug.

✘ Provisions in the state and federal endangered species laws do not apply to the wēkiu bug until it is listed as threatened or endangered. Although the wēkiu bug has been designated as a candidate for listing since 1999, neither the State nor the U.S. Fish and Wildlife Service has taken any action to actually list the wēkiu bug.

✘ Instead, the Service is preparing a Candidate Conservation Agreement for the wēkiu bug. The agreement has not been finalized or released to the public for review and comment. The agreement would be voluntary and difficult, if not impossible to enforce, given the State's and the Service's past track record on Mauna Kea. It is also highly unlikely that such an agreement would result in recovering the wēkiu bug to the point at which provisions of the federal Endangered Species Act would no longer be needed.

✘ An informal working group has been established to address issues relating to the wēkiu bug and other native species on the Mauna Kea summit. The group has met twice so far, and its specific objective is unclear. More importantly, the working group does not have the authority to require the level of protection necessary to recover the wēkiu bug.

✘ The Mauna Kea Science Reserve and all of the wēkiu bug's known habitat are located on state-managed land. State agencies have routinely ignored permit conditions and mitigation measures to protect the wēkiu bug and its habitat. Prime wēkiu bug habitat was destroyed with the State's full knowledge of the importance of the Mauna Kea summit to the wēkiu bug.

✘ Prime wēkiu habitat is also found within the Mauna Kea Ice Age Natural Area Reserve, which is part of the state Natural Area Reserves System (NARS). State laws, regulations, and policies governing the NARS do not require the State to take the necessary actions to recover the wēkiu bug to the point at which listing the species would no longer be necessary. The NARS is seriously underfunded and understaffed. There is no management plan for the Mauna Kea Ice Age Reserve, no specific management actions have been taken to protect the wēkiu bug or its habitat. There is no staff person stationed in the reserve to oversee activities and ensure adequate protection of the resource.

✘ At the federal level, the Service generally has taken a "hands-off" approach to managing the wēkiu bug on the Mauna Kea summit. For example, although the Service considers Pu'u Hau'oki prime habitat for the wēkiu bug, it failed to protect this essential habitat during construction of the Subaru telescope. The crater floor was graded and compacted, and the entire inner crater and crater walls were cut. The surface of the filled and leveled crater were scored or raked. These activities destroyed the loose cinders that are essential to the wēkiu bug.

✘ The Service also failed to prevent prime wēkiu bug habitat on Pu'u Wēkiu from being destroyed when an access road along the summit and adjacent to the Gemini telescope was realigned.

Proposed mitigation measures are inadequate to save the wēkiu bug.

✘ In an attempt to obtain approvals to construct outrigger telescopes at the W.M. Keck Observatory, NASA and other applicants propose to try and restore approximately 6,200 square feet of previously destroyed wēkiu bug habitat on Pu'u Hau'oki.

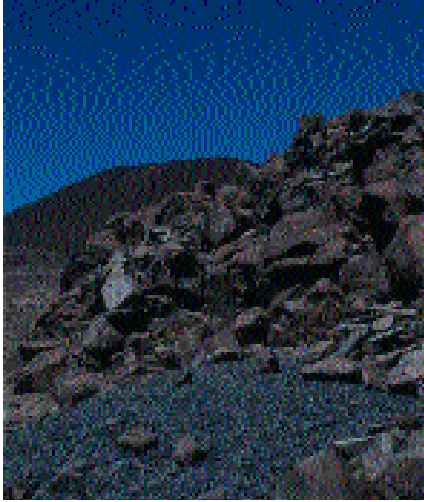
✘ The proposed restoration methodology is unproven and could end up harming the wēkiu bug and its habitat by damaging occupied habitat nearby and introducing alien species.



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✖ The proposed mitigation is limited to the immediate vicinity of the Keck Observatory and does not address the cumulative adverse impacts of the telescope industry to the wēkiu bug or its habitat in other areas over time.

✖ Both the State and the Service have failed to adequately protect the wēkiu bug and its habitat in the past. These agencies cannot be counted on to oversee or enforce any conditions imposed on this dubious proposal.



Existing information supports listing the wēkiu bug as an endangered species with critical habitat.

✖ The wēkiu bug has been a candidate for listing as threatened or endangered since 1999. According to the Service's own definition, candidate species are those for which the Service has sufficient biological to indicate that listing the species may be warranted.

✖ Surveys of the wēkiu bug in selected areas within the Mauna Kea Science Reserve were conducted by the Bishop Museum in 1982 and 1997. The Smithsonian Institution surveyed the wēkiu bug on Pu'u Hau

Kea in the Mauna Kea Ice Age Natural Area Reserve in 2001. The Bishop Museum conducted additional surveys of the wēkiu bug in 2002. The wēkiu bug's rarity is demonstrated by the fact that only 47 wēkiu bugs were trapped and an additional five were observed despite 398 total trap days of sampling effort during the 2002 study.

✖ A consultant for NASA and the California Association for Research in Astronomy is currently conducting a survey of the wēkiu bug in an effort to obtain approvals to construct the outrigger telescopes at the Keck Observatory. Once available, the results of this survey may be useful in any future revisions to the species' status and designated critical habitat. Scientists will probably continue to conduct studies of the fascinating wēkiu bug indefinitely, and any new information generated from the research may be useful in recovering the species. In the meantime, Section 4 of the federal Endangered Species Act requires the Service to base its listing decisions on the best available scientific and commercial data.

✖ The existing scientific and commercial data support listing the wēkiu bug as an endangered species with critical habitat. It is common knowledge that the wēkiu bug is naturally rare, highly specialized, and geographically restricted. Prime wēkiu bug habitat has been destroyed in the past. New and replacement telescopes, tourism, recreation, off-road vehicles, alien species introductions, and climate change continue to pose significant threats to the wēkiu bug and its habitat. Agency oversight and protection of the wēkiu bug under existing laws cannot be counted on to recover this species.

✖ The federal Endangered Species Act also requires the Service to designate critical habitat for the wēkiu bug at the time it is listed as threatened or endangered. Federal agencies would then be prohibited from implementing, approving, or funding any action that destroys or adversely modifies designated critical habitat. Citizens would be able to enforce this prohibition and other provisions under the Act.

The wēkiu bug and its special habitat on the summit of Mauna Kea
deserve as much protection as the current law allows!

For more information on the wēkiu bug, go to www.kahea.org
or call KAHEA at 808-524-8220