

include existing paved roads, quarries, and sewage treatment facilities. Included in critical habitat are areas that have been modified on the surface, but for which below-surface modifications have not altered the underlying bedrock and subterranean habitat. These land uses include but are not limited to agriculture (e.g., sugar cane, corn, coffee), range land, golf courses, county and city parks, unimproved roads, and undeveloped lands. These areas may lie adjacent to areas that have undergone extensive below-surface modification.

#### Critical Habitat Designation

Lands designated as critical habitat provide at least one of the primary constituent elements needed by the Kauai cave wolf spider and Kauai cave

amphipod, including, but not limited to, the presence of subterranean spaces from 5 to 25 cm (0.2 in to 10 in) at the narrowest dimension (collectively termed "mesocaverns"), or caves or passages (spaces greater than 25 cm (10 in)), dark and/or stagnant air zones that maintain microclimates with humidity at saturation levels, and the presence of roots from living, non-toxic plants such as, but not limited to, ohia (*Metrosideros polymorpha*), maiapilo (*Capparis sandwichiana*), and aalii (*Dodonea viscosa*) in these types of mesocaverns or caves. As discussed previously in this rule under "Primary Constituent Elements," the presence of a healthy, intact cave ecosystem, includes roots or other sources of naturally occurring detritus. While native, troglobitic

predators, detritivores, and herbivores may be present in caves lacking naturally occurring plant biomass, this situation represents an unhealthy cave ecosystem. Native troglobitic assemblages occurring in "sterile" caves (those lacking roots or other sources of active nutrient input) probably represent declining populations that will be extirpated as the existing plant biomass is consumed unless efforts are made to enhance conditions.

Lands designated as critical habitat for the Kauai cave wolf spider and Kauai cave amphipod occur in 14 separate units. The approximate area encompassing the designation of critical habitat by land ownership is shown in Table 1.

TABLE 1.—APPROXIMATE DESIGNATED CRITICAL HABITAT IN HECTARES (HA) (ACRES (AC)) BY LAND OWNERSHIP.

[Area estimates reflect critical habitat unit boundaries, not the primary constituent elements within.]

| Unit              | State/local | Private      | Total  |
|-------------------|-------------|--------------|--------|
| New Unit 01 ..... | 0 ha .....  | <1 ha .....  | <1 ha  |
|                   | 0 ac .....  | 1 ac .....   | 1 ac   |
| New Unit 02 ..... | 0 ha .....  | 7 ha .....   | 7 ha   |
|                   | 0 ac .....  | 16 ac .....  | 16 ac  |
| New Unit 03 ..... | 0 ha .....  | 6 ha .....   | 6 ha   |
|                   | 0 ac .....  | 16 ac .....  | 16 ac  |
| New Unit 04 ..... | 0 ha .....  | 2 ha .....   | 2 ha   |
|                   | 0 ac .....  | 6 ac .....   | 6 ac   |
| New Unit 05 ..... | 0 ha .....  | <1 ha .....  | <1 ha  |
|                   | 0 ac .....  | 2 ac .....   | 2 ac   |
| New Unit 06 ..... | 0 ha .....  | 2 ha .....   | 2 ha   |
|                   | 0 ac .....  | 4 ac .....   | 4 ac   |
| New Unit 07 ..... | 0 ha .....  | 3 ha .....   | 3 ha   |
|                   | 0 ac .....  | 9 ac .....   | 9 ac   |
| New Unit 08 ..... | <1 ha ..... | 2 ha .....   | 2 ha   |
|                   | 1 ac .....  | 6 ac .....   | 7 ac   |
| New Unit 09 ..... | 1 ha .....  | <1 ha .....  | 1 ha   |
|                   | 3 ac .....  | <1 ac .....  | 4 ac   |
| New Unit 10 ..... | 0 ha .....  | 14 ha .....  | 14 ha  |
|                   | 0 ac .....  | 35 ac .....  | 35 ac  |
| New Unit 11 ..... | 0 ha .....  | 4 ha .....   | 4 ha   |
|                   | 0 ac .....  | 10 ac .....  | 10 ac  |
| New Unit 12 ..... | 0 ha .....  | 6 ha .....   | 6 ha   |
|                   | 0 ac .....  | 16 ac .....  | 16 ac  |
| New Unit 13 ..... | 0 ha .....  | 21 ha .....  | 21 ha  |
|                   | 0 ac .....  | 51 ac .....  | 51 ac  |
| New Unit 14 ..... | 0 ha .....  | 39 ha .....  | 39 ha  |
|                   | 0 ac .....  | 96 ac .....  | 96 ac  |
| Total .....       | 1 ha .....  | 109 ha ..... | 110 ha |
|                   | 4 ac .....  | 268 ac ..... | 272 ac |

Designated critical habitat includes land under private, county, and State ownership. Designated lands include areas known to be occupied by the Kauai cave wolf spider and the Kauai cave amphipod and include habitat with similar distribution of geologic and soil characteristics of known occupied habitat and that contain the most probable distribution of appropriate caves and mesocaverns. A brief description of each unit and reasons for

including it as critical habitat are presented below.

**Unit 1:** Unit 1 incorporates a newly found cave and associated mesocaverns with the verified occurrence of the Kauai cave wolf spider. It is one of only six caves with a verified occurrence of the spider. It is highly likely that given the spider's presence, the amphipod is likely to be found there when conditions are appropriate. This unit contains a minimum of two of the

primary constituent elements essential to these species and which may require protection.

**Unit 2:** Unit 2 incorporates four caves and surrounding mesocaverns with two of the caves having verified occurrences of both the Kauai cave wolf spider and the Kauai cave amphipod. This unit contains three of the primary constituent elements essential to these species and which may require protection.