

contain few individuals, and are subject to threats which could extirpate them. In addition to the risk due to random natural events that can result in the extinction of species with very few, small, and highly isolated populations, potential threats to the habitat of *D. bakeri* include overcollection, application of herbicides, and sheep grazing, and potential threats to the habitat of *D. luteum* include overcollection, road widening, sheep grazing, fire suppression, and hybridization. Currently, no legally operative plans or agreements have been developed that address the maintenance and improvement of the primary constituent elements important to the species, or that provide management for the long-term conservation of *D. bakeri* or *D. luteum*.

We have outlined below the most likely kinds of special management and protection that the habitat features and primary constituent elements essential to the conservation of *Delphinium bakeri* and *D. luteum* may require. The following actions apply to both species, unless otherwise noted:

- (1) In all plant communities where these taxa occur, invasive, nonnative species need to be actively controlled;
- (2) The quality of water must be maintained to keep it free from levels of herbicides or other chemical or organic contaminants that would be deleterious to the species;
- (3) Certain areas where these species occur may need to be fenced to protect them from accidental or intentional trampling by humans and livestock;
- (4) Aerial application of herbicides and insecticides that are likely to be deleterious to the species needs to be curtailed in the critical habitat. Exposure to deleterious herbicides and insecticides from drift needs to be avoided;
- (5) The appropriate level of soil disturbance needs to be maintained (this applies only to *Delphinium luteum*); and
- (6) Existing hydrologic conditions may need to be protected by avoiding activities that cause a change in surface or subsurface water flows.

Critical Habitat Designation

Lands designated as critical habitat areas described below contain physical or biological features essential to the conservation of *Delphinium bakeri* and *D. luteum*, including one or more of the primary constituent elements described above, and constitute our best assessment at this time of the areas which meet the Act's definition of critical habitat. The approximate areas

of critical habitat by land ownership are shown in Table 1.

TABLE 1.—APPROXIMATE AREAS OF *Delphinium bakeri* AND *D. luteum* CRITICAL HABITAT IN HECTARES (HA) (ACRES (AC)). ALL CRITICAL HABITAT FOR BOTH SPECIES IS ON PRIVATE LANDS

Species (unit)	Private land
<i>D. bakeri</i> (B1)	322 ha (796 ac)
<i>D. bakeri</i> (B2)	418 ha (1,032 ac)
Subtotal <i>D. bakeri</i> .	740 ha (1,828 ac)
<i>D. luteum</i> (L1)	554 ha (1,369 ac)
<i>D. luteum</i> (L2)	133 ha (329 ac)
<i>D. luteum</i> (L3)	142 ha (351 ac)
<i>D. luteum</i> (L4)	193 ha (476 ac)
Subtotal <i>D. luteum</i> .	1,022 ha (2,525 ac)
Total (both species).	1,762 ha (4,353 ac)

Critical habitat for *Delphinium bakeri* includes one unit in Marin County which contains the only currently known location of *D. bakeri*, and a second unit in Sonoma County we believe includes the type locality for the species. The second unit is essential because establishment of a second location for *D. bakeri* is important in reducing the risk of extinction of the species due to catastrophic events. Critical habitat for *D. bakeri* totals 740 ha (1,828 ac), with 418 ha (1,032 ac) in Marin County and 322 ha (796 ac) in Sonoma County. Critical habitat for *D. luteum* includes four units. These units together contain all the *D. luteum* populations documented since the 1980s. Critical habitat for *D. luteum* includes 1,022 ha (2,525 ac), with 554 ha (1,369 ac) in Sonoma County and 468 ha (1,156 ac) in Marin County.

A brief description of each unit, along with our reasons for designating it as critical habitat, is presented below.

Unit B1: Coleman Valley, Sonoma County, California

This unit is located near Coleman Valley Road west of the town of Occidental, approximately 8 km (5 mi) from the coast. The 322 ha (796 ac) unit is bounded on the north side by Coleman Valley Road and represents an area either near or at the original type locality for *Delphinium bakeri*. The exact location of the type locality for *D. bakeri* is somewhat vague, with the location described only as "Hedrin Ranch in Coleman Valley, West of Occidental." The location is mapped to

within a 1.6 km (1 mi) radius in the CNDDDB (CNDDDB 2001).

This unit contains an extensive north-facing slope with mesic vegetation similar to the extant location of *Delphinium bakeri*, with the addition of coastal redwood. The Coleman Valley location of *D. bakeri* represents the northernmost extent of the known range of this species. This unit is essential for the survival as well as the conservation of *D. bakeri* because it provides a second area separate from the existing population for *D. bakeri*, into which the species can be reintroduced. We believe it is particularly important to have a second unit to reduce the likelihood that the species may become extinct as the result of a catastrophic event in the single location where the species is now known to occur. A second, geographically separate unit can provide greater protection to the species from chance events, such as disease, that can destroy the only remaining population.

Unit B2: Salmon Creek, Marin County, California

This unit is near the Marshall-Petaluma Road in Marin County approximately 10 km (6 mi) from the coast. This 418 ha (1,032 ac) unit is bounded on the north side by Salmon Creek and contains an extensive north-facing slope that is essential to maintaining the mesic conditions needed for the conservation of *Delphinium bakeri*. Land in this unit is privately owned with a county right-of-way along the road. This unit is of great importance to the survival of *D. bakeri* because it contains the only known extant occurrence of *D. bakeri*, and represents the southernmost extent of the range of this species.

Unit L1: Bodega Bay, Sonoma County, California

Unit L1 consists of 554 ha (1,369 ac) south of Bay Hill Road, near the town of Bodega in Sonoma County, California. This unit is comprised of Kneeland series soils, coastal prairie and scrub habitat, and is within the fog belt that moderates the climate. This unit contains features that are essential to the conservation of *Delphinium luteum*. It also is important for the conservation of the species because it supports about 30 percent of the roughly 220 total known remaining individual plants (based on the most recent population totals (CNDDDB 2001; D. Amme, pers. comm. 2002)). Because so few *D. luteum* plants remain, habitat supporting all of them is essential to the continued survival and conservation of the species. In addition, this unit is important to the conservation of the