

Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas to propose as critical habitat, we consider those physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include, but are not limited to, the following:

- (1) Space for individual and population growth, and for normal behavior;
- (2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
- (3) Cover or shelter;
- (4) Sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally;
- (5) Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

Our regulations at 50 CFR 424.12(b) further direct that when considering the designation of critical habitat, we are to focus on the principal biological or physical constituent elements within the defined area that are essential to the conservation of the species, and we are to list known primary constituent elements with the critical habitat description. Our regulations describe known primary constituent elements in terms that are more specific than the description of physical and biological features. Specifically, primary constituent elements may include, but are not limited to, the following: roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species of plant pollinator, geological formation, vegetation type, tide, and specific soil types.

All areas identified as critical habitat for *Delphinium bakeri* and *D. luteum* are within the historical range and contain one or more of the primary constituent elements that we have identified, based on the best available scientific information, as essential for the conservation of the species.

Much of what is known about the specific physical and biological requirements of *Delphinium bakeri* and *D. luteum* is described in the Background section of this final rule. The designated critical habitat is designed to provide sufficient habitat to maintain self-sustaining populations of *D. bakeri* and *D. luteum* throughout their ranges, and to provide those habitat components essential for the conservation of these species. These habitat components provide for: (1)

Space for individual and population growth, including areas that allow gene flow and provide connectivity or linkage between populations including open spaces and disturbed areas that in some instances may also contain nonnative plant species; (2) areas that provide basic requirements for growth such as water, light, minerals; (3) sites for germination, pollination, reproduction, and seed dispersal; (4) areas that support populations of pollinators and seed dispersal organisms; and (5) habitats that are representative of the historic geographical and ecological distributions of each species.

We believe the conservation of *Delphinium bakeri* and *D. luteum* is dependent upon a number of factors, including the conservation and management of sites where existing populations grow, the establishment of *D. bakeri* at a new location to provide insurance against stochastic (randomly occurring) events, the maintenance of normal ecological functions within these sites, and the preservation of the connectivity between sites to maintain recent levels of gene flow between sites through pollinator activity and seed dispersal agents. The areas we are designating as critical habitat provide some or all of the habitat components essential for the conservation of these two species.

Based on our knowledge to date, the primary constituent elements of critical habitat for *Delphinium bakeri* consist of:

- (1) Soils that are derived from decomposed shale;
- (2) Plant communities that support associated species, including, but not limited to: *Umbellularia californica* (California bay), *Aesculus californica* (California buckeye), and *Quercus agrifolia* (coastal live oak), *Baccharis pulularis* ssp. *consanguinea* (coyotebrush), *Symphoricarpos* cf. *rivularis* (snowberry), *Rubus ursinus* (California blackberry), *Pteridium aquilinum* (bracken fern), *Polystichum munitum* (sword fern), *Pityrogramma triangularis* (goldback fern), *Dryopteris arguta* (coastal woodfern), *Adiantum jordanii* (maidenhair fern), *Polypodium glycyrrhiza* (licorice fern), *Toxicodendron diversilobum* (poison oak), *Ceanothus thyrsiflorus* (blueblossom ceanothus), *Lithophragma affine* (woodland star), and *Holodiscus discolor* (oceanspray); and
- (3) Mesic (moderate moisture) conditions on extensive north-facing slopes.

Based on our knowledge to date, the primary constituent elements of critical habitat for *Delphinium luteum* consist of:

(1) Plant communities, including north coastal scrub or coastal prairie communities, including, but not limited to, species such as: *Arabis blepharophylla* (rose rockcress), *Calochortus tolmei* (Tolmei startulip), *Mimulus aurantiacus* (orange bush monkeyflower), *Dudleya caespitosa* (sea lettuce), *Polypodium californicum* (California polyploidy), *Eriogonum parviflorum* (sea cliff buckwheat), *Toxicodendron diversilobum* (poison oak), *Romanzoffia californica* (California mistmaiden), *Hesperervax sparsiflora* (evax), *Pentagramma triangularis* (goldenback fern), and *Sedum spathulifolium* (broadleaf stonecrop).

(2) Relatively steep sloped soils (30 percent or greater) derived from sandstone or shale, with rapid runoff and high erosion potential, such as Kneeland or Yorkville series soils;

(3) Generally north aspected areas; and

(4) Habitat upslope and downslope from known populations to maintain disturbance such as occasional rock slides or soil slumping that the species appears to require.

Criteria Used to Identify Critical Habitat

We identified areas on which are found physical and biological features essential for the conservation of *Delphinium bakeri*, based on consideration of the known primary constituent elements, in Marin County at the only location where the species currently is known to occur (Unit B2), as well as in the Coleman Valley area in Sonoma County (Unit B1), where the species was historically found. We are including the Coleman Valley site in our designation despite the apparent extirpation of *D. bakeri* from this location, because we believe the area is essential to the conservation of the species and still contains primary constituent elements for the species. The Coleman Valley unit encompasses the location where the species was first described, and it is one of very few locations where *D. bakeri* has ever been observed. We believe that reintroduction of *D. bakeri* at the Coleman Valley site is essential for the species' survival due to the extremely limited range of *D. bakeri*, its small population size (0 to 67 individuals over the last 20 years), and the high degree of threat from chance catastrophic events (Shaffer 1981, 1987; Primack 1993; Meffe and Carroll 1994). Such events are a concern when the number of populations or geographic distribution of a species is severely limited, as is the case with *D. bakeri*.