

about 100 m (300 ft) within northwestern Marin and southwestern Sonoma counties, California (CNDDDB 2001). The species occurs on moderate to steep slopes, generally near areas showing evidence of some level of ground disturbance in the past, including landslides (Guerrant 1978, CNDDDB 2001). Roots of *D. luteum* are tuberous, long, and thin, an unusual combination in this genus, which may provide an advantage in thin, unstable soils (Weaver 1919 as cited in Guerrant 1978). Typical soil types supporting *D. luteum* include the Kneeland series in Sonoma County and the Yorkville series in Marin County. These soils derive from sandstone or shale, and share qualities of rapid runoff and high erosion potential (U.S. Department of Agriculture 1972; Soil Conservation Service (SCS) 1985). The most recently documented populations of *D. luteum* (those seen in the 1980s or later) tend to grow on north-facing slopes in canyon complexes with steep sides (LSA Associates (LSA) 1997; CNDDDB 2001). Presumably the more shaded north-facing slopes provide a more moist microclimate than slopes facing other directions, while the steep-sloped canyon walls increase the likelihood of erosion and landslides in the vicinity. Two potential exceptions to this trend are evident (CNDDDB 2001): one population near Tomales, California, is mapped on a south-facing slope, and a relatively nearby population does not appear to grow near any steep-sloped canyon walls. Both of these populations are in critical habitat Unit L4, described below. The first population has not been documented since 1983, and its mapped location is precise to a 0.32 km (0.20 mi) radius. This could put its actual location across the canyon on a north-facing slope. The other population is growing in a road cut, which might provide erosional and soil disturbance characteristics similar to those near canyon walls (CNDDDB 2001).

Temperatures in the region inhabited by *Delphinium luteum* are moderated by fog. As a result, the summers are relatively cool and winters are relatively warm compared to inland habitats.

Much of the coastal prairie in this species' range has been grazed by livestock for over a century, and is now characterized by a mixture of nonnative annuals and forbs and native prairie plants. Native plants typically occurring with *D. luteum* include *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) (CNDDDB 2001; J. Koontz, *in litt.*, 2002;). These plants are important indicators of remaining areas of natural habitat that support *D. luteum*, and are likely to support ecological processes such as water retention, shading, nitrogen processing, and other factors that create suitable habitat conditions for *D. luteum*.

We know of 12 occurrences of *Delphinium luteum*, 11 of which are documented in the CNDDDB (CNDDDB 2001). (The CNDDDB defines an "occurrence" of a plant species as a location where the species is present and which is separated from other such locations by at least 0.40 kilometer (km) (1/4 mile (mi)). All occurrences of *D. bakeri* and *D. luteum* mapped by the CNDDDB GIS data layers indicate single populations.) Since the early 1980s, however, only 6 of these 11 occurrences have been documented (reported in the CNDDDB or other reputable source). Of the other five occurrences in the CNDDDB, three have not been documented since 1935 or earlier (two of which were revisited in the 1980s with negative results), another is based entirely on unsupported and undated information found on a 1979 map, and the fifth is a questionable identification never confirmed by a second sighting (CNDDDB 2001). The six occurrences documented more recently in the CNDDDB grow in three separate drainages, one in Sonoma County and two in Marin County. These groupings form the basis of three of the four critical habitat units we are proposing (see Units L1, L2 and L4, below). The twelfth occurrence, not yet recorded in the CNDDDB, occurs in a third Marin County drainage (Amme 1993; D. Amme, California Department of Transportation (CalTrans), *in litt.* 2002; D. Amme, pers. comm. 2002), and forms the basis of critical habitat Unit L3, as described below.

Recent surveys have not found many plants in any of these populations. The largest number recorded by CNDDDB is 134 plants for one of the Marin County populations in 1993. The total number of remaining individuals of *Delphinium luteum* currently is estimated at 100 to 175 plants (J. Koontz, *in litt.*, 2002). Each recently documented population faces one or more potential threats to its existence, including overcollection, road widening, inadequately managed sheep grazing, fire suppression, and

hybridization with another *Delphinium* species (B. Guggolz, CNPS, pers. comm., 1995; CNDDDB 2001). Additionally, the combination of few populations, small numbers of individuals within each population, narrow range, and restricted habitat makes *D. luteum* susceptible to extirpation in significant portions of its range from random natural events such as unseasonal fire, drought, disease, or other natural occurrences (Shaffer 1981; Primack 1993).

Previous Federal Action

Federal actions on the two plant species began when the Secretary of the Smithsonian Institution, as directed by section 12 of the Act (16 U.S.C. 1531 *et seq.*), prepared a report on those native U.S. plants considered to be endangered, threatened, or extinct in the United States. This report, known as House Document No. 94-51, was presented to Congress on January 9, 1975, and included *Delphinium bakeri* and *D. luteum* as species the Smithsonian considered to be endangered. On July 1, 1975, we published a notice in the **Federal Register** (40 FR 27823) accepting the report as a petition within the context of section 4(c)(2) (now section 4(b)(3)) of the Act, and of our intention to review the status of the plant taxa named in the report. On June 16, 1976, we published a proposed rule in the **Federal Register** (41 FR 24523) determining approximately 1,700 vascular plant species, including *D. bakeri* and *D. luteum*, to be endangered species pursuant to section 4 of the Act. We assembled the list of 1,700 plant taxa on the basis of House Document No 94-51, our July 1, 1975, **Federal Register** publication (40 FR 27823), and comments and data received in response to both documents. General comments received in response to the 1976 proposal were summarized in an April 26, 1978, **Federal Register** publication (43 FR 17909).

In 1978, Congress passed amendments to the Act requiring us to withdraw all listing proposals more than 2 years old. The amendments included a 1-year grace period for proposed rules which already were more than 2 years old. On December 10, 1979, we published a notice in the **Federal Register** (44 FR 70796) withdrawing the portion of the June 16, 1976, proposed rule that had not been made final, along with four other proposals that had expired. We published an updated Notice of Review (NOR) for plants on December 15, 1980 (45 FR 82480). This NOR included *Delphinium bakeri* and *D. luteum* as "category 1 candidates" (defined at that time as species for which data in our