

Iang Chuang and Larry Heckard (1973) treated *C. mollis* and *C. hispidus* as subspecies of a single species (*C. mollis*) with *Cordylanthus mollis* ssp. *mollis* recognized as the autonym.

Cordylanthus mollis ssp. *mollis* is an annual herb of the snapdragon family (Scrophulariaceae) that grows 25 to 40 cm (10 to 16 in.) tall. It is sparingly branched from the middle and above. *Cirsium mollis* ssp. *mollis* is a hemiparasite that extracts water and nutrients by attaching enlarged root structures to the roots of other plants (Chuang and Heckard 1971). The foliage is grayish-green (often tinged a deep red) and hairy. The oblong to lance-shaped leaves are 1.0 to 2.5 cm (0.4 to 1.0 in.) long, the lower leaves entire and the upper with one to three pairs of leaf lobes. The inflorescence consists of spikes 5 to 15 cm (2 to 6 in.) long. A floral bract with two to three pairs of lobes occurs immediately below each inconspicuous white or yellowish-white flower. The flowers have only two functional stamens. The narrowly ovoid seed capsule is 6 to 10 millimeters (mm) (0.2 to 0.4 in.) long and bears 20 to 30 dark brown seeds. *Cordylanthus mollis* ssp. *mollis* flowers between July and September. *Cordylanthus mollis* ssp. *mollis* is distinguished from another *Cordylanthus* found nearby (*C. maritimus* ssp. *palustris*) by its two functional stamens (*C. maritimus* ssp. *palustris* has four) and by its bracts with two to three pairs of lateral lobes (*C. maritimus* ssp. *palustris* has a pair of short teeth on the floral bracts).

Cordylanthus mollis ssp. *mollis* is found predominantly in the upper reaches of salt grass-pickleweed marshes at or near the limits of tidal action (Stromberg 1986). It is associated with *Salicornia virginica*, *Distichlis spicata*, *Jaumea carnosa*, *Frankenia salina*, and *Triglochin maritima* (Stromberg 1986). Of 18 reported occurrences of *C. mollis* ssp. *mollis*, 2 have been extirpated; 6 have been surveyed for and not relocated and possibly have been extirpated; and 10 are presumed extant (California Natural Diversity Data Base (CNDDDB) 1994; Jake Ruygt, California Native Plant Society (CNPS), *in litt.* 1993). The type locality at Mare Island for *C. mollis* ssp. *mollis* was destroyed by development and is now a dredge disposal site (CNDDDB 1994). A second occurrence, last seen in 1981 near Martinez in Contra Costa and Solano Counties, was dredged, filled, diked, and is now a marina (Stromberg 1986, CNDDDB 1994). Limited suitable habitat remains for two occurrences, which have not been relocated, in Napa, Sonoma, and Solano Counties (Stromberg 1986, CNDDDB 1994).

Although suitable habitat exists for three historical occurrences in Marin, Solano, and Sonoma Counties, the occurrences have not been relocated after repeated surveys (Stromberg 1986, CNDDDB 1994). A fourth occurrence reported from Sacramento County in 1972 has not been relocated (Jake Ruygt, *in litt.* 1993).

The remaining ten disjunct occurrences are widely scattered throughout coastal salt or brackish tidal marshes fringing San Pablo and Suisun Bays, in Contra Costa, Napa, and Solano Counties (CNDDDB 1994; Brenda Grewell, *in litt.* 1993). The entire distribution of *Cordylanthus mollis* ssp. *mollis* currently is restricted to about 8 ha (20 acres) of habitat (Jake Ruygt, *in litt.* 1993). The total number of individuals reported among populations varies from 1 at the smallest site to 141,000 plants at the largest site. Most sites have between 1,000 and 6,000 individuals (Jake Ruygt, *in litt.* 1993; CNDDDB 1994). Individual populations fluctuate in size from year to year, as is typical of annual plants. *Cordylanthus mollis* ssp. *mollis* occurs primarily on private or non-Federal land; one occurrence is found on Department of Defense (U.S. Navy) land. Habitat conversion, water pollution, increases in salinity of tidal marshes due to upstream withdrawals of fresh water, habitat fragmentation, indirect effects of urbanization, competition with non-native vegetation, insect predation, projects that alter natural tidal regime, mosquito abatement activities (including off-road vehicle use), inadequate regulatory mechanisms, erosion, and stochastic events variously threaten the remaining occurrences of *C. mollis* ssp. *mollis*.

Previous Federal Action

Federal government actions on the two plants began as a result of section 12 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct in the United States. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975, and listed *Cirsium hydrophilum* var. *hydrophilum* and *Cordylanthus mollis* ssp. *mollis* as possibly extinct. The Service published a notice on July 1, 1975 (40 FR 27823), of its acceptance of the report of the Smithsonian Institution as a petition within the context of section 4(c)(2) (petition provisions now are found in section 4(b)(3) of the Act) and its intention thereby to review the status of the plant

taxa named therein. The above two taxa were included in the July 1, 1975, notice. On June 16, 1976, the Service published a proposal (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to section 4 of the Act. The list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94-51 and the July 1, 1975, **Federal Register** publication. *Cirsium hydrophilum* var. *hydrophilum* and *Cordylanthus mollis* ssp. *mollis* were included in the June 16, 1976, **Federal Register** proposal.

General comments received in relation to the 1976 proposal were summarized in an April 26, 1978, notice (43 FR 17909). The Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to those proposals already more than 2 years old. In a December 10, 1979, notice (44 FR 70796), the Service withdrew the June 16, 1976, proposal, along with four other proposals that had expired.

The Service published an updated notice of review for plants on December 15, 1980 (45 FR 82480). The two taxa were listed as category 1 candidates for Federal listing in this document. Category 1 taxa are those that the Service has on file substantial information on biological vulnerability and threats to support preparation of listing proposals. On November 28, 1983, the Service published a supplement to the Notice of Review (48 FR 53640); there were no changes to these taxa in this supplement.

The plant notice was revised again on September 27, 1985 (50 FR 39526), February 21, 1990 (55 FR 6184), and September 30, 1993 (58 FR 51144). In these three notices *Cirsium hydrophilum* var. *hydrophilum* and *Cordylanthus mollis* ssp. *mollis* were included as category 1 candidate species.

Section 4(b)(3)(B) of the Act requires the Secretary to make certain findings on petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This was the case for *Cirsium hydrophilum* var. *hydrophilum* and *Cordylanthus mollis* ssp. *mollis*, because the 1975 Smithsonian report had been accepted as a petition. On October 13, 1982, the Service found that the petitioned listing of these species was warranted, but precluded by other pending listing