

The collections amateur botanist Charles Sonne made from 1884 to 1886 around the Truckee River in Nevada County, CA, provided the material from which the *Berberis sonnei* type later was taken. Sonne placed his collections in *B. aquifolium*, which at the time was the only suitable name to which he could refer his specimens (Roof 1974).

LeRoy Abrams (1934) determined that Sonne's specimens were not *Berberis aquifolium* and recognized them as a new species, *B. sonnei*, in his revision of the western barberries. Abrams distinguished the new species from *B. aquifolium* by the numerous small teeth on the leaf margins, dull color of underside leaf surfaces, and presence of papillae (small round or conic projections), concluding that these characters indicated a closer relationship with *B. repens*.

Sonne's material, and an 1881 collection by Marcus Jones at Soda Springs, Nevada County, CA, were the only specimens of *Berberis sonnei* available to botanists for many years. The actual location of Jones's collection has never been determined conclusively; it possibly was the same area later collected by Sonne (U.S. Fish and Wildlife Service 1984). Howard McMinn searched unsuccessfully for *B. sonnei* for his 1939 treatment of California shrubs. A 1944 collection from an unknown site on the Truckee River was placed in *B. repens* and went unnoticed by botanists for nearly 30 years. In 1965, an examination of Sonne's field notes revealed a reference to *B. aquifolium*, which likely could have been *B. sonnei*, from Deer Creek in Placer County, CA, but the locality is undocumented by a specimen (Roof 1974). *Berberis sonnei* was not relocated until a 1973 collection by Tahoe-Truckee high school student, Cathy Kramer, from the site presumably visited by Sonne nearly 90 years earlier (Roof 1974).

Taxonomic relationships between members of the *Berberis aquifolium* complex, which includes *B. repens* and *B. sonnei*, have long been confused. Abrams (1934) and McMinn (1939) both recognized a close relationship between *B. sonnei* and *B. repens*. McMinn (1939) first questioned the validity of *B. sonnei*, observing that *B. sonnei* perhaps was "only a more upright form of" *B. repens*. Yoder-Williams (1985, 1986, 1987) attributed frequent misclassification of herbarium specimens to the use of taxonomic characters incapable of consistently separating taxa of the group because they failed to account for variability throughout the range of the complex.

Yoder-Williams (1985, 1986, 1987) evaluated the diagnostic value of *Berberis* characters, including presence of papillae, glossiness of upper and lower leaf surfaces, plant height, and leaf tooth spination. As a result of his evaluation, Yoder-Williams concluded in several unpublished manuscripts that an analysis of possible characters to separate *Berberis sonnei* from both *B. repens* and *B. aquifolium* as treated by Abrams (1934) "failed to produce any clear distinctions," and that the taxon *B. sonnei* should be reduced to synonymy under *B. repens*. He recommended further field work and a comprehensive taxonomic revision of the entire group.

Michael Williams (1993) based his treatment of California *Berberis* on his taxonomic studies of selected members of the *B. aquifolium*. Williams's treatment of the California taxa followed earlier authors (Scoggan 1978) in placing *B. repens* as a variety of *B. aquifolium*, and additionally synonymized *B. sonnei* with *B. aquifolium* var. *repens*. The latter is a wide-ranging taxon with a distribution from the Peninsular Ranges of southern California northward to British Columbia and eastward to the Great Plains.

In the *Flora of North America* (Whittemore 1997), both *Berberis aquifolium* var. *repens* and *B. sonnei* are considered to be synonyms for *B. repens*. *Berberis repens* occurs in open forest, grassland, and shrubland. Whittemore (1997) notes that Sonne's collections from Truckee are considered to be an aberrant form of *B. repens*, and that subsequent collections from this population show the morphology typical of *B. repens* (Whittemore 1997). The range for *B. repens* is similar to that described for *B. aquifolium* ssp. *repens*.

Previous Federal Action

Federal Government actions on *Berberis sonnei* began as a result of section 12 of the Act, 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 included *B. sonnei* as an endangered species. We published a notice on July 1, 1975 (40 FR 27823), of our acceptance of the report of the Smithsonian Institution as a petition within the context of section 4(c)(2) of the Act (petition provisions are now found in section 4(b)(3) of the Act) and our intention thereby to review the status of the plant taxa named therein. *Berberis*

sonnei was included in the July 1, 1975, notice. On June 16, 1976, we published a proposal (41 FR 24523) to determine approximately 1,700 vascular plant species, including *B. sonnei*, 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 our July 1, 1975, publication.

General comments received in relation to the 1976 proposal were summarized in an April 26, 1978, publication (43 FR 17909). We published the final rule to list *Berberis sonnei* as an endangered species on November 6, 1979 (44 FR 64246).

On February 2, 1997, we received a petition to delist Truckee barberry (*Mahonia sonnei* [sic]) from the National Wilderness Institute. However, in April 1995, the enactment of Public Law 104-6 (P.L. 104-6) prohibited the Service from expending any of the remaining appropriated funds for the final determinations and listing of plants and animals under the Act. Subsequent Listing Priority Guidance, published on December 5, 1996 (61 FR 64479), identified all delisting actions as Tier 4, and deferred action on all delisting packages until Fiscal Years 1998 and 1999. As a result of this guidance we were unable to address the petition to delist the species. In May 1998, the Final Listing Priority Guidance for Fiscal Years 1998 and 1999 (63 FR 25508) identified all delisting actions as Tier 2 priority actions. Beginning in 1999, funding for work on delisting actions was provided through the recovery program rather than the listing program (64 FR 57114, published October 22, 1999). The basis for the National Wilderness Institute petition was original taxonomic data error. We published a proposed rule to remove *Berberis sonnei* from the Federal List of Endangered and Threatened Plants on September 3, 2002 (67 FR 56254), based on information indicating that *B. sonnei* is not a discrete taxonomic entity and does not meet the definition of a species as defined by the Act. The proposed rule also served as our combined 90-day and 12-month finding on this petition.

Summary of Issues and Recommendations

In the September 3, 2002, proposed rule (67 FR 56254) and associated notifications, we invited all interested parties to submit comments or information that might contribute to the final delisting determination for this species. The public comment period ended November 4, 2002. We contacted