

Rare Plant Status Review

List Change: *Lycopodium clavatum*

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Lycopodium clavatum is a perennial, rhizomatous herb in the Lycopodiaceae. This taxon is known from mesic lower montane coniferous forest, and along edges, roadsides, and in openings in mesic North Coast coniferous forest habitats from 45 to 1640 meters. *L. clavatum* is known from Del Norte, Humboldt, Sonoma, Mendocino Counties, Washington, Oregon, Idaho, and elsewhere (including eastern North America, South America, the Caribbean, Europe, Africa, and Asia). Please see Gordon Leppig's article on rare club-mosses (Fremontia 32 (4): 20-22 (2004) available at <http://www.cnps.org/cnps/publications/fremontia/index.php>) for more information on the biology and conservation of *L. clavatum*.

Lycopodium clavatum is currently still on CNPS List 2; its Global rank is G5, since it is widespread outside of California. Its State rank is S4.1, since there are a large number of occurrences, but the endangerment level is high due to its concentration on one or two watersheds and one major ownership. We last reviewed this taxon in 2006, when CNDDDB and CNPS prepared a summary of the current situation and this was followed up with an in-person meeting in Ukiah. Since that time, CNDDDB has not added to the occurrences of this plant. There are still 120 mapped EO's in the CNDDDB. However, the backlog of unentered data has risen from 361 unentered forms in 2006 to 587 in May 2008. Of the 120 occurrences of *L. clavatum* in the CNDDDB, 34 are ranked as "good" or "excellent" (25 have an occurrence rank of "unknown"), and 116 of 120 occurrences are considered "recent" (occurrence records have been updated within the past 20 years). We did not do an exhaustive analysis of the unentered data this time. In 2006, an analysis of unprocessed CNDDDB files (when there were 361 unprocessed files) indicated that the files contained 90 new occurrences (the estimated total number of occurrences in 2006 was 210). Since 2006, 226 unprocessed files have been added to the CNDDDB backlog (to bring the total to 587). Based on prior analysis, we extrapolate that the additional 226 unprocessed files are likely to result in the addition of approximately 50 new occurrences to the CNDDDB. As a result, it is fair to assume that there are approximately 260 known occurrences of *L. clavatum* in California (this is the total of the 120 occurrences currently in CNDDDB combined with the 90 additional occurrences from the 2006 analysis, and the 50 estimated occurrences from the 2008 analysis). Based on an analysis of the unprocessed files, and despite taking the conservative approach, a large number of these new occurrences are likely to be ranked as "good" or "excellent." This will push *L. clavatum* over the usual threshold of 50 good to excellent occurrences, which is the borderline we use to trigger serious review of downlisting a taxon.

We recognize that *L. clavatum* has several biological and ecological features that make it more sensitive than many rare plants. *L. clavatum* is threatened by logging, herbicide application, road construction, and road maintenance. Leppig (2004) states that the "majority of occurrences are on managed timberlands", but also indicates that *L. clavatum*, "has low survivorship in clearcuts and after stand replacement events."

In 2006, *L. clavatum* underwent a status review for downlisting from CNPS List 2 to List 4. At that time there was concern about the low number of CNDDDB occurrences ranked "good" or "excellent." Additionally, reviewers expressed concern about the lack of information about the long-term

viability and trends of known occurrences. As a result, CNPS and CNDDDB chose to retain *L. clavatum* on List 2 until further information about its status and abundance were known. However, the S-Rank dropped to S4.1.

As a general rule, CNPS List 2 includes plants that are rare, threatened, or endangered in California (with fewer than 50 occurrences ranked "good" or "excellent" by CNDDDB), and are more common elsewhere. Based on the information currently available, *L. clavatum* does not appear to fit the criteria of CNPS List 2 plants. *L. clavatum* does, however, meet the criteria of plants included on CNPS List 4 (plants of limited distribution with generally between 50 and 200 occurrences in California).

Based on the information currently available, CNPS and CNDDDB recommend that *Lycopodium clavatum* be downgraded from CNPS List 2.3 to List 4.1. Please review the data table provided below for a summary of CNDDDB Element Occurrences.

Occurrences of <i>Lycopodium clavatum</i> currently in CNDDDB by Rank						
	Excellent	Good	Fair	Poor	None	Unknown
Number of Occurrences	6	28	43	18	0	25
Occurrences of <i>Lycopodium clavatum</i> in CNDDDB by County						
	Humboldt	Mendocino	Sonoma			
Number of Occurrences	115	4	1			
Occurrences of <i>Lycopodium clavatum</i> by Population Status						
	Recent (updated within last 20 years)	Historical				
Number of Occurrences	116	4				

Please review the draft Revised CNPS *Inventory* record below, and provide any updated information, and comment on this proposed ranking change.

Recommended Actions

CNPS: Re-rank from CNPS List 2.3 to CNPS List 4.1

Draft Revised CNPS *Inventory* record:

Lycopodium clavatum L.
 running pine
 Lycopodiaceae
List 4.1
 Del Norte, Humboldt, Mendocino, Sonoma

Sent to NW on 5/14/08

Element Code: PPLYC01080
Changed from List 2.3 to List 4.1 on 2008-07-08

Lower montane coniferous forest (mesic), marshes and swamps, North Coast coniferous forest (mesic)/often edges, openings, and roadsides; elevation 45-1640 meters.

Perennial, rhizomatous herb, "blooms" June through August.

Threatened by logging, herbicide application, road construction, and road maintenance. See *Fremontia* 32(4):20-22 (2004) for natural history.