Changed from 1B.1 to 1B.2 in CNPS Inventory on September 12, 2012

Rare Plant Status Review: *Panicum acuminatum* var. *thermale*
Proposed Rank Change from 1B.1, G5T1Q / S1.1 to 1B.2, G5T2Q, S2

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Changes made to the original document appear in blue text.

Background

Panicum acuminatum var. *thermale* is a California Rare Plant Rank 1B.1 taxon that has been included in the CNPS Inventory since 1974 and is State-listed as Endangered in California. It has a unique habitat preference for geothermal areas (Bolander 1862). *Panicum acuminatum* var. *thermale* has a long history of taxonomic changes that are succinctly outlined by MIG (2005). As this document is not available to the public, however, we briefly summarize its taxonomic history here. Plants collected from The Geysers in Sonoma County, California were first described as *Panicum thermale* by Bolander (1862). This same name was used for plants collected from various habitats throughout western North America by Munz and Keck (1959).

Spellenberg (1975) treated all of these plants as *Dichanthelium lanuginosum*, with the Sonoma County plants treated as *D. lanuginosum* var. *thermale*. The CNPS Rare Plant Inventory recognized this name until April of 2012, when the name was changed to *Panicum acuminatum* var. *thermale* to be in agreement with *The Jepson Manual, Second Edition* (*TJM 2*); a full status review was not done at that time because CNPS and CNDDB were not aware of the re-circumscription associated with the new treatment. Other varieties of *D. lanuginosum,* such as var. *sericeum* (a hot springs taxon from the Rocky Mountains) and vars. *lindheimeri* and *fasciculatum* (which grow near cold springs or seeps in California) were treated by Spellenberg (1975) and Harvill (1977). In *The Jepson Manual* (1993), *Panicum thermale* was treated as a synonym of *Panicum acuminatum* var. *acuminatum*, a common taxon from both North and South America. Currently, *P. acuminatum* var. *acuminatum* is treated as occurring in South America and other parts of North America, but not California (*TJM 2*). In addition to the plants form The Geysers in Sonoma County, the *TJM 2* treatment adds plants from the High Cascade Ranges, but no plants outside of California, to the circumscription of *Panicum acuminatum* var. *thermale* (R. Freckmann pers. comm. 2012). The *Flora of North America* will treat this taxon as *Dichanthelium acuminatum* ssp. *thermale* (R. Freckmann pers. comm. 2012).

Herbarium specimens were reviewed to aid in the re-circumscription of *Panicum acuminatum* var. thermale in *TJM 2.* LeLong noted in 1993 that a specimen from Plumas County (*Jepson 4082*) had adaxial leaf blade surfaces that were “fine and softly puberulent”, consistent with Spellenberg’s (1975) treatment and the recent *TJM 2* treatment (Consortium of California Herbaria, CCH, 2012).

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The inclusion of these additional populations from California slightly increases its abundance and broadens its distribution within the state, from five to either nine or ten occurrences (see attached "Locations_PanicumAcuminatumThermale" spreadsheet). Although there are 59 records of *Panicum acuminatum* var. *thermale* in the CCH (2012), these records represent only four or possibly five new occurrences. Specimens from El Dorado and Nevada Counties are likely in error, as they are not from geothermal areas. Additional specimens were located by searching for *Panicum acuminatum* with no infraspecific determination and the key word "hot" in the geographic locality section of the CCH (2012). A specimen from hot springs in Fresno County (*Raven 4885*), currently labeled as *P. acuminatum* var. *acuminatum*, would represent a significant range extension if confirmed as var. *thermale*. Furthermore, plants from the hot springs near the summit of Mount Shasta may be *P. acuminatum* var. *thermale* and need verification (S. de Becker pers. comm. 2012).

All of the new occurrences except for the possible occurrence in Fresno County are within Lassen Volcanic National Park, and should be considered well-protected. Plants from Sonoma County are historically threatened by energy development, erosion, non-native plants, and potentially road maintenance (CNDDB 2012). Most of these threats, however, are largely outdated, and plants from The Geysers are currently only threatened by competition with non-native plants (G. Plantenkamp pers. comm. 2012). The populations at The Geysers have been afforded increased protection by Calpine Corporation since 1999, and the entire area is now closed to public entry (G. Plantenkamp pers. comm. 2012, A. Howald pers. comm. 2012). Based on the available information, CNPS and CNDDB recommend re-ranking *Panicum acuminatum* var. *thermale* from California Rare Plant Rank 1B.1 to Rank 1B.2.

Recommended Actions
CNPS: Re-Rank from CNPS 1B.1 to 1B.2
CNDDB: Re-rank from G5T1Q / S1.1 to G5T2Q, S2

Revised CNPS Inventory Record
Panicum acuminatum Sw. var. *thermale* (Bol.) Wipff
Geysers panicum
Poaceae
Rank 1B.2
Fresno?, Plumas, Shasta, Sonoma, Siskiyou
Lassen Peak (626A) 401245, Reading Peak (625B) 4012144, The Geysers (534D) 38122G7, Ward Mountain (395B)? 3711828, Whispering Pines (533C) 38122G6, Mt. Shasta (698B)? 4112242
Closed-cone coniferous forest, Riparian forest, Valley and foothill grassland / geothermally-altered soil, sometimes streamsides; elevation 305 – 2470 meters.
Annual/perennial herb; blooms June – August.
Known only from The Geysers and Lassen Volcanic NP geothermal areas. Does plant occur on Mt. Shasta (SIS Co.)? Plants from Blaney Meadows (FRE Co.) need verification. Threatened by ~~energy development, erosion, and~~ non-native plants.

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~~Potentially threatened by road maintenance.~~ A synonym of *Panicum acuminatum* var. *acuminatum* in *TJM* (1993). See *Proceedings of the California Academy of Sciences* 2:181 (1862) for original description, *Madroño* 23(3):151 (1975) for taxonomic treatment, and *Proceedings of the CNPS Conservation Conference*, pp. 256-263 (2009) for information on population dynamics and monitoring.

Literature Cited

Baldwin, B.G., D.H. Goldman, D.J. Keil, R.W. Patterson, and T.J. Rosatti (eds.). 2012. The Jepson Manual (Second Edition). University of California Press, Berkeley, California.

Bolander, H.N. 1862. *Proceedings of the California Academy of Sciences* 2: 181.

Consortium of California Herbaria (CCH). 2012. Data provided by the participants of the Consortium of California Herbaria. Regents of the University of California, Berkeley. Accessed on August 2, 2012. Available online at: ucjeps.berkeley.edu/consortium/

Harvill, A.M. 1977. New combinations in *Dichanthelium* (Poaceae). *Castaneae* 42(2): 177. [not seen by authors]

Moore Iacofano Goltsman, Inc. (MIG). 2005. Monitoring Geysers Dichanthelium (*Dichanthelium acuminatum* ssp. *thermale*) 2001-2005. Prepared for Calpine.

Munz, P.A. and D.D. Keck. 1959. A California Flora. University of California Press. Berkeley, California.

Spellenberg, R.M. 1975. Synthetic hybridization and taxonomy of western North American *Dichanthelium,* group Lanuginosa (Poaceae). *Madroño* 23(3): 145-150.

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