

Added to California Rare Plant Rank 1B.1 on July 24, 2014

**Rare Plant Status Review: *Triteleia piutensis*
Proposed Addition to California Rare Plant Rank 1B.1, G1 / S1**

Aaron E. Sims (CNPS) and Roxanne Bittman (CNDDDB)

June 13, 2014

Background

Triteleia piutensis E. Kentner & K. Steiner is a perennial bulbiferous herb in the Themidaceae that is presumed to be endemic to the Piute Mountains in the southern Sierra Nevada of Kern County, California. It was recently described by Kentner and Steiner (2014) and is therefore not included in *The Jepson Manual, Second Edition* (Pires and Keator 2012), *Flora of North America* (Pires 2003), or other state or regional floras at the time of this writing. *Triteleia piutensis* was discovered in 2010 during botanical surveys in the Piute Mountains. It was not identifiable using Keator (1993), Pires (2003), or Munz (1974) and therefore descriptions and photographs were sent to several experts on the genus (C. Pires, G. Keator, and L. Lenz) for clarification, and the consensus was that it could represent an undescribed species. An additional population of *T. piutensis* was confirmed in 2013 from a 2001 collection by Eve Laeger (3965 [UCR]), making it the first collection known of the species (Kentner and Steiner 2014).

The stamens of *T. piutensis* are attached at two different levels (Kentner and Steiner 2014), separating it from eight of the thirteen *Triteleia* species currently known from California (Pires and Keator 2012). "It is distinguished from other *Triteleia* species that have stamens attached at two different levels by its erect, yellow, campanulate flowers with recurved lobes, its short ovary stalk, and a geographic range restricted to the extreme southern Sierra Nevada Mountains" (Kentner and Steiner 2014). The southern and northern populations of *T. piutensis* exhibit different stature; plants in the southern population have scapes averaging 12 cm in length, while the scapes of plants in the northern population are typically only 2 cm in length. This is possibly due to the clay soils and hardpan at the northern population compared to the fine volcanic soils at the southern population. *Triteleia piutensis* is most similar to *T. crocea* (Alph. Wood) Greene, which is assumed to be restricted to the Klamath and High Cascade Ranges of northern California and southwest Oregon (Pires 2003; Pires and Keator 2012). However, there is a single collection of *T. crocea* from Kern County (*Hoover* 8337 [RSA, SD, UC]), which represents a range extension of more than 650 km. This specimen, collected about 45 km north of *T. piutensis*, was initially suspected to represent a new population of *T. piutensis*. However, upon examination of duplicates at RSA and SD, it was found to be distinct from *T. piutensis* in having ovary stalks that are equal in length to the ovaries, and a different perianth shape and habit. "Hoover (1955) noted that his Kern County collection of *T. crocea* had smaller anthers than specimens from northern California and Oregon, but could find no other characters distinguishing the southern plants" (Kentner and Steiner 2014). Although the possible occurrence of *T. crocea* in Kern County needs further study, "the available material appears to be distinct from *T.*

piutensis" (Kentner and Steiner 2014). *Triteleia piutensis* is known to flower from May to June and fruits in June to July (Kentner and Steiner 2014).

Triteleia piutensis occurs in open, volcanically derived soils of pinyon juniper woodland. Its southern population is known from fine volcanic soils throughout scattered boulders, while the northern population is in exposed heavy clay soils with a hardpan underlain derived from volcanic rocks. Species associates of the southern population include: *Allium cratericola* Eastw., **Bromus tectorum* L., *Ericameria linearifolia* (DC.) Urbatsch & Wussow, *Ericameria teretifolia* (Durand & Hilg.) Jeps., *Hesperoyucca whipplei* (Torr.) Trel., *Juniperus californica* Carrière, *Lewisia rediviva* Pursh, *Pinus monophylla* Torr. & Frém., and *Poa secunda* J. Presl. Associated species of the northern population include: *Calochortus kennedyi* Porter, *Perideridia pringlei* (J. M. Coult. & Rose) A. Nelson & J. F. Macbr., *Pinus monophylla*, *Poa secunda*, *Quercus john-tuckeri* Nixon & C. H. Mull., and sparse annuals like **B. tectorum*, *Microsteris gracilis* (Hook.) Greene, and *Rigiopappus leptocladus* A. Gray (* denotes species not native to California) (Kentner and Steiner 2014). *Triteleia piutensis* is known from an approximate elevation of 1585 to 1655 meters.

Triteleia piutensis is currently known from only two occurrences, from a ridge west of Horse Canyon, 15.3 km northwest of Tehachapi, and a flat ridge, 3.2 km north of Emerald Mountain. The southern population near Horse Canyon was observed to have several hundred plants in two patches on 16 May 2001, but only approximately 30 plants on 27 April 2013; however, 2013 had much drier conditions. The northern population near Emerald Mountain had approximately 75 plants observed on 3 June 2010, and 120 plants observed on 23 June 2011. The land ownership of the southern population is private, and about 100 meters west of a parcel under jurisdiction of the Bureau of Land Management (BLM). The northern population is on BLM lands within a few meters of the boundary fence and the adjacent private property (Kentner and Steiner 2014). Although *T. piutensis* is a very recent novel species, it is expected to be a rare narrow endemic restricted to the Piute Mountains. Intensive botanical surveys of several thousand acres near the northern population were conducted in 2010, 2011, and 2012 without any additional populations of *T. piutensis* found. *Triteleia piutensis* also has rather showy and distinctive flowers, and it is surprising that it has apparently not been previously collected despite the extensive botanical explorations that have occurred in the southern Sierra Nevada (Kentner and Steiner 2014). Although there are Sequoia National Forest and BLM lands to the north of the population near Emerald Mountain, most of the area surrounding the site is remote, privately owned land that has been poorly botanically explored, suggesting that additional populations may exist (Kentner and Steiner 2014).

Triteleia piutensis is threatened by wind energy development. "Both of the known populations of this species occur in the vicinity of the Tehachapi wind resource area where several large wind energy developments have recently been constructed. If additional populations exist, *T. piutensis* is likely to face increasing threats from development unless developers, consultants, and land managers are made aware of its

existence, and surveys to determine its presence are conducted during the environmental review for proposed projects in the area.” (Kentner and Steiner 2014).

Based on the available information, CNPS and CNDDDB recommend promptly adding *Triteleia piutensis* to California Rare Plant Rank 1B.1 of the CNPS Inventory. If additional information becomes available in the future which might constitute a change in the rarity or threat status of *T. piutensis*, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Triteleia piutensis* to 1B.1

CNDDDB: Add *Triteleia piutensis* to G1 / S1

Draft CNPS Inventory Record

Triteleia piutensis E. Kentner & K. Steiner

Piute Mountains triteleia

Themidaceae

CRPR 1B.1

Kern

Tehachapi NE (212A) 3511823, Emerald Mtn. (237D) 3511833

Pinyon and juniper woodland / openings, fine volcanic soil throughout scattered boulders or heavy clay soil with volcanic hardpan; elevation 1585 to 1655 meters

Perennial bulbiferous herb. Blooms May to June

Known only from the Piute Mtns. in the southern Sierra Nevada. Threatened by wind energy development. Similar to *T. crocea*. See *Madroño* 61(2):227-230 (2014) for original description.

Literature Cited

Hoover, R. F. 1955. Further observations on *Brodiaea* and some related genera. *Plant Life* 11: 13-22.

Keator, G. 1993. *Triteleia*. Pp. 1206-1208 in J. C. Hickman (ed.), *The Jepson manual: higher plants of California*. University of California Press, Berkeley, CA.

Kentner, E. and K. Steiner. 2014. A new species of *Triteleia* (Themidaceae) from the southern Sierra Nevada. *Madroño* 61(2): 227-230.

Munz, P. 1974. *A flora of southern California*. University of California Press, Berkeley, CA.

Pires, J. C. 2003. *Triteleia*. Pp. 321-339 in *Flora of North America Editorial Committee* (eds.), *Flora of North America North of Mexico*, Vol. 26: Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, New York, NY.

___ and G. Keator. 2012. *Triteleia*. Pp. 1512-1514 in Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.), *The Jepson manual: vascular plants of California*, 2nd ed. University of California Press, Berkeley, CA.