



<https://doi.org/10.11646/phytotaxa.567.2.10>

## Validation and lectotypification of the fern combination *Whittieria engelmannii* (Ophioglossaceae)

XIA WAN<sup>1, 2, 3, 4, 6</sup>, LIANG ZHANG<sup>4, 5, 7</sup> & LI-BING ZHANG<sup>1, 4, 8,\*</sup>

<sup>1</sup> Key Laboratory of Mountain Ecological Restoration and Bioresource Utilization, Chengdu Institute of Biology, Chinese Academy of Sciences, Chengdu 610041, China.

<sup>2</sup> College of Life Sciences, Sichuan University, Chengdu 610065, China.

<sup>3</sup> University of Chinese Academy of Sciences, Beijing 100049, China.

<sup>4</sup> Missouri Botanical Garden, St. Louis, Missouri 63110, USA.

<sup>5</sup> Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, Yunnan 650201, China.

<sup>6</sup> [xwan@mobot.org](mailto:xwan@mobot.org); <https://orcid.org/0000-0001-8312-6917>

<sup>7</sup> [zhangliang@mail.kib.ac.cn](mailto:zhangliang@mail.kib.ac.cn); <https://orcid.org/0000-0003-3784-3135>

<sup>8</sup> [Libing.Zhang@mobot.org](mailto:Libing.Zhang@mobot.org); <https://orcid.org/0000-0002-4905-040X>

\*Author for correspondence: [Libing.Zhang@mobot.org](mailto:Libing.Zhang@mobot.org)

A new combination, *Whittieria engelmannii*, is made for a fern species occurring in Central and North Americas. We also designated the lectotype of *Ophioglossum engelmannii*.

Recent phylogenetic studies (Zhang *et al.* 2021, Zhang & Zhang 2022) have led to the recognition of 15 genera in the adder's-tongue fern family or Ophioglossaceae including three newly introduced (Zhang & Zhang 2022): *Goswamia* Li Bing Zhang & Liang Zhang (2022: 23), *Haukia* Li Bing Zhang & Liang Zhang (2022: 24), and *Whittieria* Li Bing Zhang & Liang Zhang (2022: 24). According to Shenzhen Code Art. 41.5. (Turland *et al.* 2018), “*a new combination, name at new rank, or replacement name is not validly published unless its basionym or replaced synonym is clearly indicated and a full and direct reference given to its author and place of valid publication, with page or plate reference and date*”. Unfortunately, the combination “*Whittieria engelmannii* (Prantl) Li Bing Zhang & Liang Zhang” is not validly published by Zhang & Zhang (2022) because it was not explicitly indicated that it was a new combination and the publication of the basionym was not fully cited. Here we validly publish this combination and designate a lectotype for this species.

### Nomenclatural treatment

*Whittieria engelmannii* (Prantl 1883: 351) Li Bing Zhang & Liang Zhang ex Li Bing Zhang, Liang Zhang & X. Wan, *comb. nov.* Basionym: *Ophioglossum engelmannii* Prantl (1883: 351) ≡ “*Whittieria engelmannii* (Prantl) Li Bing Zhang & Liang Zhang” (2022: 24), *nom. inval.*

**Type:**—U.S.A. Texas: Comanche Spring, New Braunfels, May 1849, *F.J. Lindheimer* 1281 (lectotype MO201251!, **here designated**, isolectotypes FI003993!, K001057659!, MEXU00085077!, MEXU00000139!, TEX00348044!). Remaining syntypes: U.S.A. Texas: May 1849, *F.J. Lindheimer* 95 (MO251338!). U.S.A. Texas: Comanche Spring, Bexar County, May 1849, *F.J. Lindheimer* 53 (GH00021725!, FI003992!).

**Notes:**—In the protologue (Prantl 1883), there were no specific gatherings cited but only “Nordamerika” (North America) was given. According to Stafleu & Cowan (1983: 379), K.A.E. Prantl's herbarium and types are mainly at “HBG (esp. Pteridophyta)”. We searched the database of HBG ([www.herbariumhamburgense.de](http://www.herbariumhamburgense.de)), and only found three gatherings of *Ophioglossum* from Namibia and South Africa. In Tropicos ([tropicos.org](http://tropicos.org)), four gathering are indicated as “T” (type) or “ST” (syntypes). We found three of the four gatherings in various herbaria (see above) in JSTOR ([plants.jstor.org](http://plants.jstor.org)) but could not find Engelmann s.n collected before 1883. We here designated the one of the duplicates of *F.J. Lindheimer* 1281 at MO as the lectotype.

This species has three unique features: growing in basic soils, double venation (large areoles of the sterile blade subdivided into smaller areoles; Wagner & Wagner 1994), and 71 days of spore germination time (Whittier 1981, Zhang & Zhang 2022).

**Distribution:**—United States, Mexico, and Central America.

## Acknowledgments

Alan Weakley kindly brought the invalid combination to our attention in May, 2022. XW is grateful for Glory Light International Fellowship for Chinese Botanists.

## References

- Prantl, K. (1883) Systematische Übersicht der Ophioglosseen. *Berichte der Deutschen Botanischen Gesellschaft* 1: 348–353.
- Stafleu, F.A. & Cowan, R.S. (1983) *Taxonomic Literature*, ed. 2. vol. IV. Bohn, Scheltema and Holkema, Utrecht/Antwerpen; dr. W. Junk b.v., Publishers, The Hague/Boston. 1214 pp.
- Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber, W.H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F. (Eds.) (2018) *International Code of Nomenclature for Algae, Fungi, and Plants (Shenzhen Code) Adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017*. Regnum Vegetabile 159. Koeltz Botanical Books, Glashütten.  
<https://doi.org/10.12705/Code.2018>
- Wagner, W.H.J. & Wagner, F.S. (1994) Ophioglossaceae. In: Flora of North America Editorial Committee (Ed.) *Flora of North America North of Mexico*, vol. 2, printing 2: Pteridophytes and Gymnosperms. Oxford University, New York and Oxford, pp. 85–106.
- Whittier, P. (1981) Spore germination and young gametophyte development of *Botrychium* and *Ophioglossum* in axenic culture. *American Fern Journal* 71: 13–19.  
<https://doi.org/10.2307/1546671>
- Zhang, L., Fan, X.-P., Petchsri, S., Zhou, L., Pollawatn, R., Zhang, X., Zhou, X.-M., Lu, N.T., Knapp, R., Chantanaorrapint, S., Limpanasittichai, P., Sun, H., Gao, X.-F. & Zhang, L.-B. (2020) Evolutionary relationships of the ancient fern lineage the adder's tongues (Ophioglossaceae) with description of *Sahashia* gen. nov. *Cladistics* 36: 380–393.  
<https://doi.org/10.1111/cla.12408>
- Zhang, L. & Zhang, L.-B. (2022) Phylogeny, character evolution, and systematics of the fern family Ophioglossaceae based on Sanger sequence data, plastomes, and morphology. *Molecular Phylogenetics and Evolution* 173: 107512.  
<https://doi.org/10.1016/j.ympev.2022.107512>