

Correction of the holotype citations of three vascular plants at the herbarium of the National Institute of Biological Resources, Korea

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A holotype is an element to which the name of a taxon is permanently attached and is key material that facilitates taxonomic research. However, type citation or designation errors due to typographical errors or inadvertent mistakes often exist. When reviewing recently published literature for the type specimens of vascular plants in the herbarium of the National Institute of Biological Resources, we observed that three species, *Isoetes laosiensis*, *Isoetes coreana*, and *Huperzia jejuensis*, had errors, and the actual holotype information and the type descriptions of the protologues did not match. The name *Isoetes laosiensis* had a collecting number error, while *Isoetes coreana* and *Huperzia jejuensis* had collector errors. According to Article 9.2 of the International Code of Nomenclature for algae, fungi, and plants (Shenzhen code), if a holotype designation in the protologue of the name of a taxon is found to contain errors such as collector, collecting number, and illustration errors, the errors are to be corrected. We, therefore, corrected the errors in holotypes of three species, with no alterations made to the intents of the original authors.

Keywords: *Huperzia jejuensis*, *Isoetes coreana*, *Isoetes laosiensis*, KB, National Institute of Biological Resources, typographical error

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INTRODUCTION

The herbarium of the National Institute of Biological Resources (KB) is the largest national herbarium in Korea. It preserves more than 700,000 specimens, including type specimens of 33 species of vascular plants. A holotype is a valuable original specimen that describes a new species, and the specimen is one of the most significant materials for taxonomic research. However, sometimes, there are often errors in the type designation or citation due to typographical errors or other inadvertent mistakes. While examining the inventory and appraising the management of the type specimens at KB, we noticed that the holotype specimen information of three species, *Isoetes laosiensis* C. Kim & H.K. Choi, *Isoetes coreana* Y.H. Chung & H.K. Choi, and *Huperzia jejuensis* B.Y. Sun & J. Lim had errors (Jang *et al.*, 2020). According to article 9.2 of the International Code of Nomenclature (ICN) for algae, fungi, and plants (Shenzhen code, Turland *et al.*, 2018), if the designation of a holotype in the protologue of the name of a taxon is later found to contain errors (e.g., in locality, date, collector, collecting

number, herbarium code, specimen identifier, or citation of an illustration), the errors are to be corrected, provided the intent of the original author is not altered.

The name *Isoetes laosiensis* C. Kim & H.K. Choi (Kim *et al.*, 2010) was validly published with the holotype designated as “B.Y. Sun & S.S. Choi 2039-5” on page 48. However, they provided the holotype image of “B.Y. Sun & S.S. Choi 2039-1” on page 50. Therefore, the original type citation was obviously erroneous and the holotype citation needs correction. The *I. laosiensis* type duplicates at KB included six sheets, with “2039-1” recorded in the holotype sheet and “2039-1 to 5” in the isotype sheets. Duplicate specimens have to be assigned the same collection numbers (coll. No.). In the protologue of Kim *et al.* (2010), all duplicates should be considered coll. No. “2039”; therefore, coll. No. “2039-5” (the fifth duplication of coll. No. “2039”) is an error in coll. No. “2039.” Barcode number NIBRVP720427 in coll. No. “2039” is annotated as a “Holotype” and the specimen is in the best state, while the others (NIBRVP720428 to 270432) are recorded as “Isotype”. Therefore, we corrected barcode number NIBRVP720427 as a holotype of *I. laosien-*

sis, while the other duplicates of coll. No. “2039” (NIBRVP720428 to 720432) should be considered isotypes.

In the protologue of *Isoetes coreana* Y.H. Chung & H.K. Choi (Chung & Choi, 1986), the collectors of the holotype are recorded as “Y.H. Chung & H.K. Choi”. However, the collectors on the label of the holotype specimen are “H.K. Choi & S. Lee.” Therefore, according to Article 9.2 ICN (Turland *et al.*, 2018), the holotype collectors recorded on the specimen should be modified to “H.K. Choi & S. Lee.”

In the name *Huperzia jejuensis* B.Y. Sun & J. Lim (Lim & Sun, 2015), the number of collectors between the protologue (C.H. Kim, J. Lim, N. Yun and S.S. Choi) and the label of the holotype specimen (J. Lim, S.S. Choi and N. Yun) varies. We corrected the holotype collectors of *H. jejuensis* as “J. Lim, S.S. Choi and N. Yun” based on the label of the holotype. The ICN code (Turland *et al.*, 2018) allows the correction of errors in the holotype citation. *Isoetes laosiensis*, *I. coreana*, and *H. jejuensis* were validly published. Even following the correction, the names would continue to be valid from the date of publication (Chung & Choi, 1986; Kim *et al.*, 2010; Lim & Sun, 2015).

CORRECTION OF HOLOTYPE CITATION

Isoetes laosiensis C. Kim & H.K. Choi, Amer. Fern J. 100: 48, 2010.

Holotype. Laos, Ban Kiat Nagang village, Mt. Phou Asha, 24 Jul. 2007, B.Y. Sun & S.S. Choi 2039-1, KB (NIBRVP720427) (Fig. 1)

Isoetes coreana Y.H. Chung & H.K. Choi, Korean J. Pl. Taxon. 16: 2, 1986.

Holotype. Juxta flumen Hanum, Nonmi-ri, Hanammyon, Hwachon-gun, Kangwon-do, Korea, 1 Aug. 1984, H.K. Choi & S. Lee 58000, KB (NIBRVP720426) (Fig. 2)

Huperzia jejuensis B.Y. Sun & J. Lim, Korean J. Pl. Taxon. 45: 18, 2015.

Holotype. Korea, Jeju Island: Mt. Halla, Seongpanak hiking trail, in forests beside the trail, 8 Aug. 2010, J. Lim, S.S. Choi & N. Yun 50803, KB (NIBRVP473716) (Fig. 3)



Fig. 1. Holotype of *Isoetes laosiensis* C. Kim & H.K. Choi.



Fig. 2. Holotype of *Isoetes coreana* Y.H. Chung & H.K. Choi.



Fig. 3. Holotype of *Huperzia jejuensis* B.Y. Sun & J. Lim.

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