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Correction of the holotype and type locality of *Dendrobates duellmani* Schulte, 1999 (Anura: Dendrobatidae)

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Schulte (1999) described *Dendrobates duellmani* (currently *Ranitomeya ventrimaculata*; Brown et al. 2011) based on a photograph of a single individual from northern Peru, originally published in Rodríguez & Duellman (1994; their Plate 2D) (see our Figure 1F). Schulte designated the specimen KU 221832, deposited at the Herpetology Collection of the University of Kansas, USA, as the holotype and listed the type locality as "San Jacinto, 2km, nahe der ekuadorianischen Grenze. Loreto, Peru" which translates from German to "San Jacinto, 2 km, near the Ecuadorian border, Loreto, Peru." (Schulte 1999, pg. 69). However, in the figure legend for the image of the holotype used for the description the specimen is listed as KU 231832 (Schulte 1999, Figure DB-051, pg. 85). During a recent examination of dendrobatoid specimens at the KU Herpetology collection, we found that neither KU 221832 nor KU 231832 correspond to the specimen described and pictured as the holotype of *Dendrobates duellmani*. We clarify the correct holotype designated for *D. duellmani* (*sensu* Schulte 1999) and provide a more precise type locality for the species. We also present photographs and measurements of the preserved holotype, supporting accurate future assessment and verification of the specimen.

An examination of the KU Herpetology collection records indicates that the confusion surrounding the holotype of *D. duellmani* likely originated from inconsistencies in William E. Duellman's field catalog (hereafter 'WED field catalog'). The number KU 221832 was assigned in the KU Herpetology collection to a specimen of *Colostethus trilineatus* (field number WED 60328; currently *Allobates trilineatus*). Although this catalog number was correctly linked to WED 60328 in the WED field catalog, KU 221832 was also erroneously associated with a different specimen, WED 59879 (*Dendrobates ventrimaculatus*; currently *Ranitomeya ventrimaculata*; Grant et al. 2006). This duplication of catalog numbers in the original field records resulted in a persistent mismatch between the WED field number and the KU catalog record for WED 59879. Additionally, the use of catalog number KU 231832 in the original species description referring to the photographed holotype was most likely a typographical error, as KU 231832 corresponds to a specimen of *Ameiva chrysolaema*, a lizard, in the KU Herpetology collection.

This series of catalog number errors has clearly contributed to confusion in subsequent publications referencing *D. duellmani* and its holotype. For example, in a taxonomic update of the genus *Dendrobates* published shortly after the species description, Lötters and Vences (2000) listed the holotype of *D. duellmani* as KU 231832. Later, Brown et al. (2011) referred to the holotype as NHMK 231832, incorrectly applying the acronym NHMK instead of KU, which properly designates the KU Herpetology collection. This further contributed to confusion regarding both the identity and depository of this type specimen.

After a thorough examination of the specimens and careful comparison of field and catalog numbers, we confirm that the specimen used by Schulte (1999) in the description of *D. duellmani* is KU 221835, originally cataloged as *D. ventrimaculatus*. This identification is supported by the morphological and color pattern match between KU 221835 and the photograph of the live individual published as *D. ventrimaculatus* in Rodríguez & Duellman (1994; Plate 2D), which was later republished in Schulte's (1999) description of *D. duellmani* (Fig. DB-051, p. 85). Additionally, Duellman's field notes describe specimen WED 59879, the field number associated with KU 221835, as having "throat and dorsal stripes bright orange", further corroborating that KU 221835 is the specimen upon which the species description was based.

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Regarding the type locality, Lötters & Vences (2000) restricted it to "Südöstliche Umgebung vom Ölcamp San Jacinto (bei 2°18'42.8" S, 75°51'57.9" W), circa 180 m NN, östlich des Rio Tigre, Departamento Loreto, Peru" which translates from German to "southeastern area of the San Jacinto oil camp (at 2°18'42.8"S, 75°51'57.9"W), approximately 180 m above sea level, east of the Rio Tigre, Loreto Department, Peru". This clarification substantially improved the vague locality originally provided in the species description. However, further refinement of the locality description is possible. The holotype was collected in 1993 during a field expedition focused on documenting amphibian and reptile

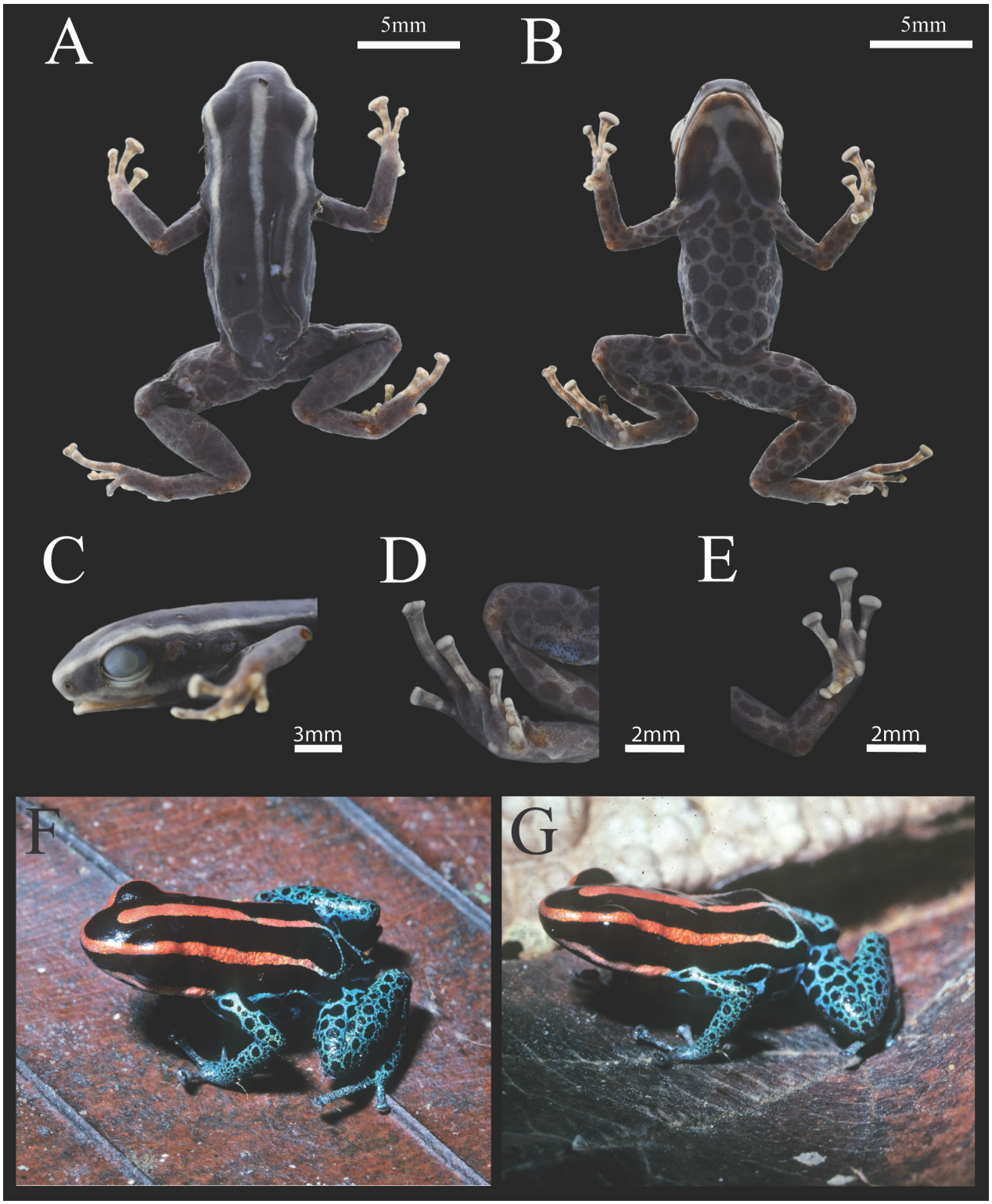

FIGURE 1. Holotype of *Dendrobates duellmani* (KU 221835) in (A) dorsal and (B) ventral views; (C) lateral view of the head; (D) ventral view of foot and (E) hand; and (F, G) dorsolateral views of the specimen in life. Photos (A) and (B) by A. Maile; photos (C), (D), and (E) by A. Weldon and L. Mckinley; photos (F) and (G) by W. E. Duellman.

diversity in northern Loreto, Peru. A detailed description of the surveyed localities from this expedition is provided in Duellman & Mendelson (1995). Based on this account, a more precise description of where the specimens of *D. ventrimaculatus* from San Jacinto were collected is:

"San Jacinto Study Zone. — 02°18'44.8"S,75°51.46.0"W, 180 m (entrance of trail from road). Partially disturbed rainforest on low rolling terrain with a system of 25 20 X 20 m quadrats in an area extending from the west edge of a blackwater lagoon (175 m elevation) for 280 m to the northeast and 160 m to the northwest and encompassing elevations of 175-190 m."

Lastly, to provide a comprehensive account of the *D. duellmani* holotype, we provide its measurements and photographs in preservative (Figure 1). The following measurements were taken using a digital caliper (to the nearest 0.1 mm): SVL (snout–vent length) = 15.1 mm, TL (tibia length) = 6.6 mm, TH (thigh length, from vent to knee) = 6.6 mm, FL (foot length, distance from proximal margin of inner metatarsal tubercle to tip of Toe IV) = 5.9 mm, FA (forearm length, from posterior margin of thenar tubercle to elbow) = 3.6 mm, HL (head length, obliquely from angle of jaw to tip of snout) = 5.7 mm, HW (head width, at level of angle of jaw) = 5.1 mm, ED (eye diameter) = 2.4 mm, IOD (interorbital distance) = 3.6 mm, IND (internarial distance) = 2.1 mm, E-N (eye–nostril distance, straight line distance between anterior corner of orbit and posterior margin of external nares) = 2.0 mm. After 32 years of preservation, the specimen retains a dark background coloration, while the areas that were brightly colored in life, such as the broad orange dorsal stripes, and blue reticulated pattern on the venter and legs, have faded to a light cream.

Even though *Dendrobates duellmani* is currently considered a junior synonym of *Ranitomeya ventrimaculata* (*sensu* Shreve 1935; Brown et al. 2011), it remains crucial to correct and update the information associated with its type specimen and type locality to ensure its continued accessibility for future research on *Ranitomeya* systematics and taxonomy. Our investigation also exemplifies how the potential of long-lasting errors increases when type specimens are secondarily designated, i.e., based solely on previously published catalog numbers and specimen images. This underscores the crucial importance of direct visual examination of type specimens in species descriptions and taxonomic revisions.

Our correction is consistent with the International Code of Zoological Nomenclature (ICZN, 1999). As stated in Article 73.1, a holotype is "the single specimen upon which a new nominal species-group taxon is based in the original publication." Recommendation 73C advises authors to publish relevant information about the holotype, such as catalog numbers, but this information alone does not define the holotype. Furthermore, Article 72.5.6 clarifies that when a taxon is based on a description or illustration, the name-bearing type is the actual specimen described or illustrated, not the illustration itself. Accordingly, the holotype designated by Schulte (1999) remains unchanged: it is the specimen depicted in Rodríguez & Duellman (1994; Plate 2D) and Schulte (1999; Figure DB-051, p. 85). Although the original description listed an incorrect KU catalog number, the intent to designate the illustrated specimen (KU 221835) as the holotype was unambiguous and meets the ICZN criteria (Articles. 72, 73). The cataloging error does not affect the validity of the holotype designation.

References

Brown, J.L., Twomey, E., Amézquita, A., Barbosa de Souza, M., Caldwell, J.P., Lötters, S., von May, R., Melo-Sampaio, P.R., Mejía-Vargas, D., Pérez-Peña, P., Pepper, M., Poelman, E.H., Sánchez-Rodríguez, M. & Summers, K. (2011) A taxonomic revision of the Neotropical poison frog genus *Ranitomeya* (Amphibia: Dendrobatidae). *Zootaxa*, 3083 (1), 1–120. https://doi.org/10.11646/zootaxa.3083.1.1

Duellman, W.E. & Mendelson, J.R. (1995) Amphibians and reptiles from northern Departamento Loreto, Peru: taxonomy and biogeography. *University of Kansas Science Bulletin*, 55 (10), 329–376. https://doi.org/10.5962/bhl.part.7695

Grant, T., Frost, D.R., Caldwell, J.P., Gagliardo, R., Haddad, C.F.B., Kok, P.J.R., Means, D.B., Noonan, B.P., Schargel, W.E. & Wheeler, W.C. (2006) Phylogenetic systematics of dart-poison frogs and their relatives (Amphibia: Athesphatanura: Dendrobatidae). *Bulletin of the American Museum of Natural History*, 299, 1–262.

ICZN (1999) *International Code of Zoological Nomenclature*. *4th Edition*. International Trust for Zoological Nomenclature, London. Available from: https://www.iczn.org/the-code/the-code-online/ (accessed 5 July 2025)

Lötters, S. & Vences, M. (2000) On the taxonomy of South American poison frogs (Dendrobatidae: *Dendrobates*) with notes on *D. minutus*, *D. quinquevittatus*, *D. steyermarki* and *D. duellmani*. *Herpetozoa*, 13 (3/4), 155–162.

Rodríguez, L.O. & Duellman, W.E. (1994) Guide to the frogs of the Iquitos region, Amazonian Peru. *University of Kansas Natural History Museum Special Publication*, 22, 1–80.

Schulte, R. (1999) *Pfeilgiftfrösche. "Artenteil—Peru"*. Karl Hauck, Waiblingen. [unknown pagination]

Shreve, B. (1935) On a new teiid and Amphibia from Panama, Ecuador, and Paraguay. *Occasional Papers of the Boston Society of Natural History*, 8, 209–218.