

A comment on Hurtado & D'Elía (2019): Neotypes for von Tschudi's *Hesperomys destructor* and *Hesperomys melanostoma* are invalid

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Abstract

Hurtado & D'Elía (2019, *Journal of Zoological Systematics and Evolutionary Research*, 57, 127) assessed the taxonomy and systematics of *Oligoryzomys destructor* (von Tschudi, 1844), including the evaluation of names associated with this species. These authors recognized *O. destructor* as polytypic, with *O. destructor destructor* and *O. destructor spodiurus* (Hershkovitz, 1940) as subspecies; additionally, the epithet *melanostoma* von Tschudi, 1844 was treated as a junior synonym of *O. d. destructor*. They also stated that in the original description of *Hesperomys destructor* and *Hesperomys melanostoma*, no holotypes or type localities for either species were designated. For this reason, Hurtado & D'Elía erected neotypes for both of von Tschudi's nominal species. Nonetheless, the type material collected and used by von Tschudi to describe *H. destructor* and *H. melanostoma* is still extant and held at the Muséum D'Histoire Naturelle de Neuchâtel (Neuchâtel—Switzerland), along with other mammals collected by him. Furthermore, I provide some comments on the original collection locality for both type specimens, presenting further evidence on the resolution of this problem. The existence of this original material invalidates the neotypes proposed by Hurtado & D'Elía and, consequently, their redesignated type localities, highlighting the importance of carrying out exhaustive searches before the designation of new type material.

KEYWORDS

Cricetidae, lectotype, *Oligoryzomys*, taxonomy, type locality

1 | INTRODUCTION

1.1 | von Tschudi and the type material of *Hesperomys destructor* and *Hesperomys melanostoma*

The main goal of Johann Jakob von Tschudi during his travel to South America (1838–1842) was to collect biological material to increase the collections and the relevance of the Muséum D'Histoire Naturelle de Neuchâtel (MHNN hereafter; Godet, 1901; Kaulicke, 2001). This expedition was full of difficulties, but those did not prevent von Tschudi from fulfilling his goal and successfully collecting important samples of different biological groups, among them,

between 80 and 100 mammals representing 31 species (Godet, 1901; Hershkovitz, 1987).

von Tschudi described *Hesperomys destructor* and *Hesperomys melanostoma* based on specimens obtained during his travels across Peru (1838–1842). These names appeared for the first time in a preliminary report on the Peruvian fauna presented by von Tschudi (1844a), but they were *nomina nuda* because no formal description was provided. Subsequently, these species were formally described and illustrated by (von Tschudi, 1844b, p. 184), who mentioned some additional information regarding his material. He found a pair of individuals of *H. destructor* nesting in a chest in which he kept specimens

over a period of several months; because they destroyed several of these valuable specimens, he named the species for this incident. Godet (1901, p. 55) stated that the types of the species described by von Tschudi (1844b) were deposited in the MHNN and that some duplicates were exchanged with other museums; unfortunately, no detailed list was presented.

Gyldenstolpe (1932, p. 12) was apparently the first to review von Tschudi's material, stating that the types for both *destructor* and *melanostoma* were in Neuchâtel and that the type locality of both nominal species was eastern Peru. Additionally, he described both specimens affirming that (consistent with von Tschudi, 1844b description) the type of *melanostoma* had darker dorsal pelage and a tail that was more hairy at the tip than the type of *destructor*. Despite these morphological differences, Gyldenstolpe (1932) tentatively placed *melanostoma* as a synonym of *destructor*, which he ranked as a subspecies of *Oryzomys longicaudatus* (Bennet, 1832) following Thomas (1928). Several other authors have considered *melanostoma* as a synonym of *destructor* (Carleton & Musser, 1989; Ellerman, 1941; Musser & Carleton, 2005; Thomas, 1927; Weksler & Bonvicino, 2015), whereas some have retained *destructor* and *melanostoma* as distinct taxa (Cabrera, 1961; Hershkovitz, 1940; Tate, 1932; Trouessart, 1898).

Hurtado and D'Elía (2019) argued that the taxonomic assessment of the populations currently recognized as *Oligoryzomys destructor* (said by them to be a species complex) is complicated because no type material was designated by von Tschudi (1844a, 1844b). The authors then designated two adult male specimens in the Field Museum of Natural History (FMNH, Chicago—USA) as neotypes for *H. destructor* (FMNH 24611) and *H. melanostoma* (FMNH 24608). However, the formal designation of type material was only adopted as a regular and mandatory taxonomic practice at the Paris Congress of the International Commission of Zoological Nomenclature (ICZN) in 1948, so it is routine taxonomic procedure to use other criteria than formal designation to identify type material for species described prior to that date.

Using the information provided by Godet (1901) and Gyldenstolpe (1932) regarding von Tschudi's original material, I searched for specimens of *O. destructor* and *Oligoryzomys melanostoma* using the MHNN's online database (<http://orion3.unine.ch/collections/formulaire/welcome.asp>). My search showed the existence of two individuals of *Oryzomys* (until recently a synonym of *Oligoryzomys*), each labeled as "type," one bearing the online identification "*Oryzomys* sp." (catalog number MHNN 94.2043A but identified as *Oryzomys destructor* on the label) and the other *Oryzomys melanostoma* (catalog number MHNN 94.2043B). I contacted the assistant curator of the MHNN to request additional information and photographs. Both specimens are mounted skins, with original and modern labels (Figure 1); furthermore, these specimens have a red mark (by convention, the symbol indicating type specimens). In addition, the specimens themselves are very similar to those illustrated by von Tschudi, 1844b: Figures 1 and 2, Plate XIV), and they match the description of *H. destructor* and *H. melanostoma* presented in his text von Tschudi, 1844b, p. 184) and by (Gyldenstolpe, 1932, p. 12).

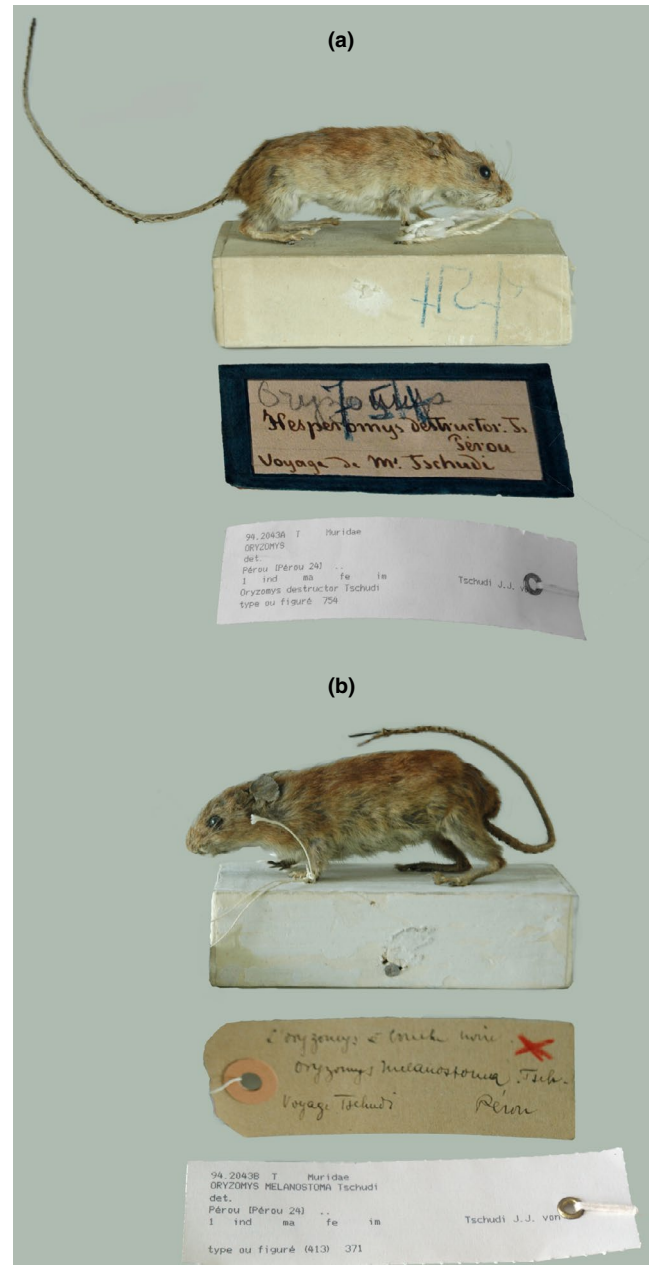


FIGURE 1 Lectotypes of (a) *Hesperomys destructor* (MHNN 94.2043A) and (b) *Hesperomys melanostoma* (MHNN 94.2043B), held at the Muséum D'Histoire Naturelle de Neuchâtel (Switzerland). Photograph by Celia Bueno

According to Article 73.2 of the ICZN (1999), "for a nominal species-group taxon established before 2000 (Art. 72.3) all the specimens of the type series are automatically syntypes if neither a holotype (Art. 72.1) nor a lectotype (Art. 74) has been fixed. When a nominal species-group taxon has syntypes, all have equal status in nomenclature as components of the name-bearing type." In effect, all the material of *H. destructor* and *H. melanostoma* collected by von Tschudi could be considered as syntypes, including any held in other collections than the MHNN. Furthermore, and agreeing with Mayr, Linsley, and Usinger (1953), a specimen labeled as the type should be accepted as such unless clear proof to the contrary

exists. In this particular case, Hurtado and D'Elía (2019) failed to present any evidence to deny the category of type material from von Tschudi's specimens. Hence, there are no reasons for not considering the specimens MHNN 94.2043A and MHNN 94.2043B as syntypes and, consequently, I designate these specimens as lectotypes of *H. destructor* and *H. melanostoma*, respectively.

To be valid, neotypes may only be designated "when no name-bearing type specimen... is believed to be extant" (ICZN, 1999: Article 75.1), and the designation is only valid if there is exceptional need, and when the authors state "their reasons for believing the name-bearing type specimen(s)... to be lost or destroyed, and the steps that had been taken to trace it or them" (ICZN, 1999: Article 75.3.4). Because the type material of the nominal species in question is extant, because no effort to locate them was made or stated, the neotypes designated by Hurtado and D'Elía (2019) are invalid. Unless suppressed by plenary action of the ICZN, the MHNN specimens are the presumptive name-bearers, and the application of the names *destructor* and *melanostoma* can only be justified with reference to their phenotypic attributes, or to such genetic data as can be extracted from them.

1.2 | Type locality of *Hesperomys destructor* and *Hesperomys melanostoma*

von Tschudi (1844b) did not explicitly state where he collected *H. destructor* and *H. melanostoma*; he only mentioned that both species inhabited the "Eigentliche Waldregion," giving a brief description of the circumstances of collection and natural history of the species. According to this author, *H. destructor* was a "house mouse," while *H. melanostoma* was more of a "field mouse" found especially in the fields of yucca and maize (von Tschudi, 1844b:184). Hershkovitz (1940, p. 81) suggested that the type material of these species was collected in the vicinity of von Tschudi's home in Peru, but provided no further details. After reviewing material of *Oligoryzomys* from the Rio Chinchao district (Huánuco, Peru), Hershkovitz (1940) noticed that these samples closely resembled the original description and the color plate of the type of *H. destructor* (von Tschudi, 1844b, p. 182, pl. XIV: Figure 1). Additionally, Hershkovitz (1940, p. 81) claimed that the Río Chinchao district would be included in what was defined as "Eigentliche Waldregion" by von Tschudi, (1844b: xxviii). Considering Hershkovitz's (1940) hypothesis, Cabrera (1953: p. 390) "restricted" the type localities of *H. destructor* and *H. melanostoma* to "las haciendas junto al río Chinchao, departamento de Huánuco, entre los 900 y los 1,000 m de altitud" (Huánuco, Peru). However, Cabrera's action was not based on new evidence about where the holotypes were collected. Hurtado and D'Elía (2019) invalid neotype designation would have fixed the type locality of both species as Hacienda Exito (09°25'60"S, 76°00'00"W) on the Rio Chinchao, a place that von Tschudi is not known to have visited.

Although it is not known where in von Tschudi's "Eigentliche Waldregion" (forested region of eastern Peru according to Zimmer, 1943) the types were actually collected, previous authors have made some educated guesses about taxa with the same indefinite type locality. Zimmer (1950) claimed that von Tschudi's

"Waldregion" would encompass the Chanchamayo/Junin region (Departamento de Junin), which is consistent with where von Tschudi is known to have spent much of his time, and where he collected other mammals (e.g., the type of *Marmosops noctivagus*; Gardner & Creighton, 2008). During his travels, von Tschudi kept constant communication with Louis von Coulon Jr., then director of the MHNN, providing him with news about his travels and the specimens he collected, as well as to request financial support and scientific material to continue his work. In one of these letters, originally published in Godet (1901) and, afterwards, in von Tschudi (1999) (translated to Spanish by Prentice, 1999), von Tschudi commented about a cabin where he spent around ten months in the "Montaña de Vitoc" (Godet, 1901; Ravines, 1999). Based on information compiled by J. T. Zimmer, Vaurie (1972, p. 35) affirmed that the Montaña de Vitoc is near Chanchamayo at about 11°11'S, 75°18'W. Because the Montaña de Vitoc is the only locality where von Tschudi settled and spent several months collecting specimens (Godet, 1901), it seems probable that the types of *H. destructor* and *H. melanostoma* were collected there.

The exact type locality for *H. destructor* and *H. melanostoma* is not, however, particularly important, because Hurtado and D'Elía (2019) have convincingly established on the basis of both phenotypic and genetic evidence, that only a single species of *Oligoryzomys* occurs in those parts of eastern Peru where von Tschudi is known to have worked. Therefore, so long as the MHNN specimens exhibit the diagnostic morphological traits of *O. destructor* as tabulated and illustrated in Hurtado and D'Elía's otherwise exemplary report, the identification of the species seems well established.

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