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Comment on the proposed conservation of usage of *Testudo gigantea* Schweigger, 1812 (currently *Geochelone (Aldabrachelys) gigantea*; Reptilia, Testudines)

(Case 3463; see BZN **66**: 34–50, 80–87, 169–186, 274–290, 352–357; **67**: 71–90, 170–178, 246–254, 319–331; **68**: 72–77)

J. Frazier

Department of Vertebrate Zoology – Amphibians & Reptiles, National Museum of Natural History, Smithsonian Institution, PO Box 37012, Washington DC 20013–7012, U.S.A. (e-mail: kurma@shentel.net)

Pat Matyot

Seychelles Islands Foundation, Board of Trustees, c/o PO Box 321, Victoria, Mahé, Seychelles (e-mail: pat.matyot@sbc.sc)

Hoogmoed (BZN **68**: 72–77) criticised the paper in *Zootaxa* by Frazier & Matyot (2010), calling for their conclusions to be considered void. The *Zootaxa* paper provided a detailed compilation and evaluation of numerous historic and contemporary sources, considered results of consultations with diverse colleagues, and made two fundamental conclusions: (1) the locality for RMNH 3231, the lectotype of *Testudo dussumieri* Gray, 1831, is uncertain; it is unlikely to be Aldabra Atoll, but is likely to be Mahé, granitic Seychelles; (2) the combination of apparent time and locality of collection, together with the unique haplotype, raises a possibility that the specimen is an extinct Seychelles tortoise – not an Aldabra tortoise. Despite his 6-page comment, Hoogmoed provided no new information to remove uncertainty about the provenance and taxonomic identity of the specimen, and he continues to ignore recognised sources of error. Only a brief summary of the extensive details presented in Frazier & Matyot (2010) will be given herein, where we limit the discussion to the evidential basis of the issues.

The locality of the lectotype of *Testudo dussumieri* Gray, 1831

There is no evidence that J.-J. Dussumier, considered to be the collector of the lectotype, ever visited Aldabra, but he is definitely known to have made collections on Mahé, in the granitic Seychelles, at a time (possibly as early as 1823) when native Seychelles tortoises were still in existence. Dussumier is also known to have visited the Mascarene Islands of Mauritius and Ile Bourbon (La Réunion), where thousands of tortoises from the granitic Seychelles, as well as from Aldabra, had been imported. For example, in his summary of historic records, Bour (1984, p. 302) reported that 'from 1773 to 1810, at least 25 ships carrying Tortoises from central Seychelles Islands entered Mauritius', adding in a footnote that 'a ship could load from 500 to 6000 Tortoises' (though the latter figure is questionable). According to Toussaint (1965, p. 56), in December 1808 the *Favorite* was still transporting a cargo of land

tortoises from Seychelles to Mauritius; likewise, in October 1807 the *Amazone* carried a load of land tortoises from Seychelles to Réunion (p. 61). A.M.C. Duméril, G. Bibron and A.H.A. Duméril, herpetologists at the Paris Museum where Dussumier's collections were received, recorded his tortoises from Anjouan (Comores) and Seychelles – there is no mention of any Dussumier tortoise from Aldabra.

Gray's original (1831) description of *T. dussumieri* is confused for many reasons; while he evidently saw a small tortoise in Leiden sometime before 1831, it is unclear – among other things – what data accompanied it, a fact recognised by Hoogmoed (BZN **68**: 74). Several years later, in their section on *T. indica*, Temminck & Schlegel (1834, p. 75) included the statement 'Cet établissement a reçu du Musée de Paris un autre individu très-jeune, communiqué sous l'épithète de Test. Dussumieri, rapporté par le voyageur dont elle porte le nom, de l'île Aldebra située au nord du canal de Mosambique.' ['This institution {The Leiden Museum} has received from the Paris Museum another very young individual, sent under the name of *Test. Dussumieri*, brought by the traveler whose name it bears, from Aldabra Island situated in the north of the Mozambique Channel.']. As Hoogmoed explained (BZN **68**: 74 and following pages), it is unknown on what Temminck & Schlegel based this statement.

Originally, Hoogmoed (BZN **66**: 354–356; Hoogmoed et al., 2010) claimed that the lectotype has good locality data based on the assertion that the old label that accompanies RMNH 3231 was the 'original label' from Paris, but he now admits (BZN **68**: 77) that 'there is a good chance that the old label' is not the original, and probably postdates both Gray and Temminck & Schlegel. He also acknowledges various other uncertainties, including unknown collection management practices during the early years of the Leiden Museum, beginning in 1820 and for the next few decades: 'About the early history of its management we know little and it even is not quite certain when the present numbering system for reptiles and amphibians jointly was started, although there are some clues to that' (p. 76). In addition, he recognises (p. 77) that 'the name *Test. dussumieri*, mentioned by Temminck & Schlegel (1834) and Gray (1831 b) does not appear in the register or on the label'. Nonetheless, he (BZN **68**: 72–77) continues to defend his earlier claim that the specimen's locality is unequivocally known. The basis for his assertion now rests on Temminck & Schlegel's (1834) above-quoted statement, although Hoogmoed acknowledges that the source of this is unknown. Hoogmoed fixedly disregards, among other things, a fundamental point explained by Matyot (BZN **66**: 352): there is no evidence that Dussumier ever visited Aldabra atoll, or that he provided any collections from Aldabra.

Hoogmoed's faith in the purported provenance of the specimen based on a passage made years after the original description might be understandable if there were no contradictory evidence. If Temminck & Schlegel's account were consistent with the localities reported by Dussumier and/or records of his specimens in the institution where his collections were originally received (Paris Museum), it would help build a case for the locality of the lectotype. However, Temminck & Schlegel's statement stands alone and in contrast to historic information about Dussumier's itineraries and collections. As much as Temminck & Schlegel (1834) give an authoritative account of what was known of chelonians at that time, Hoogmoed does not consider the dangers of erroneous documentation, a problem that has happened too many times in the past to be ignored – regardless of the scientific authority. This would not

be the first time Temminck's name has been associated with incorrect localities and erroneous data regarding Dussumier's travels. Desmarest (1826, pp. 215–216), reviewing Temminck's *Monographie de Mammalogies*, drew attention to several such mistakes: 'M. Temminck a été mal informé, pour l'indication des localités qu'il attribue aux animaux qu'il décrit, ou pour celle des lieux où il fait aller les voyageurs naturalistes. . . . c'est ainsi qu'il fait voyager dans ces îles {les îles Mariannes} M. Dussumier, quoique ce négociant n'y soit jamais allé. . .' ['Mr. Temminck has been misinformed regarding the localities that he attributes to the animals he describes, or the places that he claims the naturalist-travellers called at. . . it is thus that he claims Mr. Dussumier travelled to these islands {the Marianas}, whereas this merchant never went there. . .']. Moreover, Temminck is known to have made other serious mistakes in specimen localities and other associated data, some of which were described by Chris Smeenk, former Curator of Mammals of the Leiden Museum. Smeenk (2009) did a detailed evaluation of historic and bibliographic information concerning one of Captain Cook's Australian possums *Pseudocheirus peregrinus* (Boddaert, 1785) and he stated flatly (p. 733): 'Temminck (1824) has added to the confusion', explaining several errors and the evident confounding of collectors and localities by this 19th century ornithologist. Smeenk's summary remark (p. 737) is critical: 'In this connection, it should be emphasized that many, if not most, early specimens in the Leiden Museum are insufficiently documented.'

Were RMNH 3231 just any specimen, the uncertainty about the locality might not be so important, but this is a lectotype, designated by opponents of Case 3463 to be the name-bearing type of the Aldabra tortoise. It hardly needs explaining further the tremendous, and unnecessary, confusion that would be caused by using a name-bearing type that has an uncertain provenance – worse yet if it turned out to have a locality totally inappropriate to the taxon in question. Myriad biological studies have faced serious problems for having relied on erroneous specimen documentation (e.g. Rasmussen & Prys-Jones, 2003; Boessenkool et al., 2010).

As Dunn & Stuart (1951, p. 677) eloquently explained: 'Just as reexamination of a type specimen may bring to light errors in the original description or characters not mentioned in it, so reexamination of the data accompanying the type specimen or related to it (original labels, collector's notes, or itineraries, etc.) may add precision to or even alter the type locality as given in the original description.' Article 76.2 of the Code makes it very clear that the precise locality of a lectotype is determined by the place of origin, not necessarily previously published statements. More and more speculations about what might, or might not, have happened to RMNH 3231 will not turn an equivocal locality into a known fact.

The identity of the lectotype of *Testudo dussumieri* Gray, 1831

With the evidence that Dussumier's tortoise was most likely collected in the granitic Seychelles at a time when the native tortoises were still extant, or possibly in the Mascarene Islands to where both Seychelles and Aldabra tortoises had been shipped, its taxonomic identity cannot be assumed. To date, no one who has declared that the lectotype is an Aldabra tortoise has provided a single basic measurement, much less a description of the diagnostic characters used to distinguish it from extinct Seychelles tortoise taxa.

Austin et al. (2003) have done the only genetic study on RMNH 3231, based on a 336-bp fragment of mtDNA. They reported this specimen as haplotype B, with two nucleotide substitutions from the common haplotype A of the Aldabra tortoise; out of the 37 non-Madagascan specimens on which they reported, RMNH 3231 has a unique haplotype. Although this does not prove that the lectotype is from a different lineage, it contrasts with the lack of genetic variation in 915-pb fragments of mtDNA that Balmer et al. (2010) found in a sample of 112 tortoises on Aldabra. Notably, while Austin et al. concluded (p. 1422), with very careful language, that 'the mtDNA of non-Madagascan *Aldabrachelys* studied here suggests that only a single species may be involved' they preceded (p. 1421) this with the caveat: 'there may have been some sampling of extinct lineages.' Aware that information on genetic diversity of western Indian Ocean tortoise populations – particularly the extinct granitic Seychelles lineage(s) – is poorly known, Austin et al. were cautious about over-extending the interpretation of their results and making dogmatic statements. Contrary to Hoogmoed's claim that the genetic research proves that the lectotype is an Aldabra tortoise, what is known to date of non-Madagascan *Aldabrachelys* haplotypes is not sufficient for distinguishing closely related lineages or specimen provenance (Austin in litt. 27 April 2011). Hence, the taxonomic identity of the lectotype remains unresolved.

Conclusion

The absence of an unequivocal locality defeats the supposed scientific value of RMNH 3231 as a name-bearing type for the Aldabra tortoise. Taken together with the uncertain taxonomic identity, the designation of this specimen as the name-bearing type for the Aldabra tortoise, and the continued use of the binomen, would only encourage debate, discord, and nomenclatural instability, incompatible with the primary objective of the Code: nomenclatural stability and universality.

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