Twitter Thread by Dr Mark D. Scherz



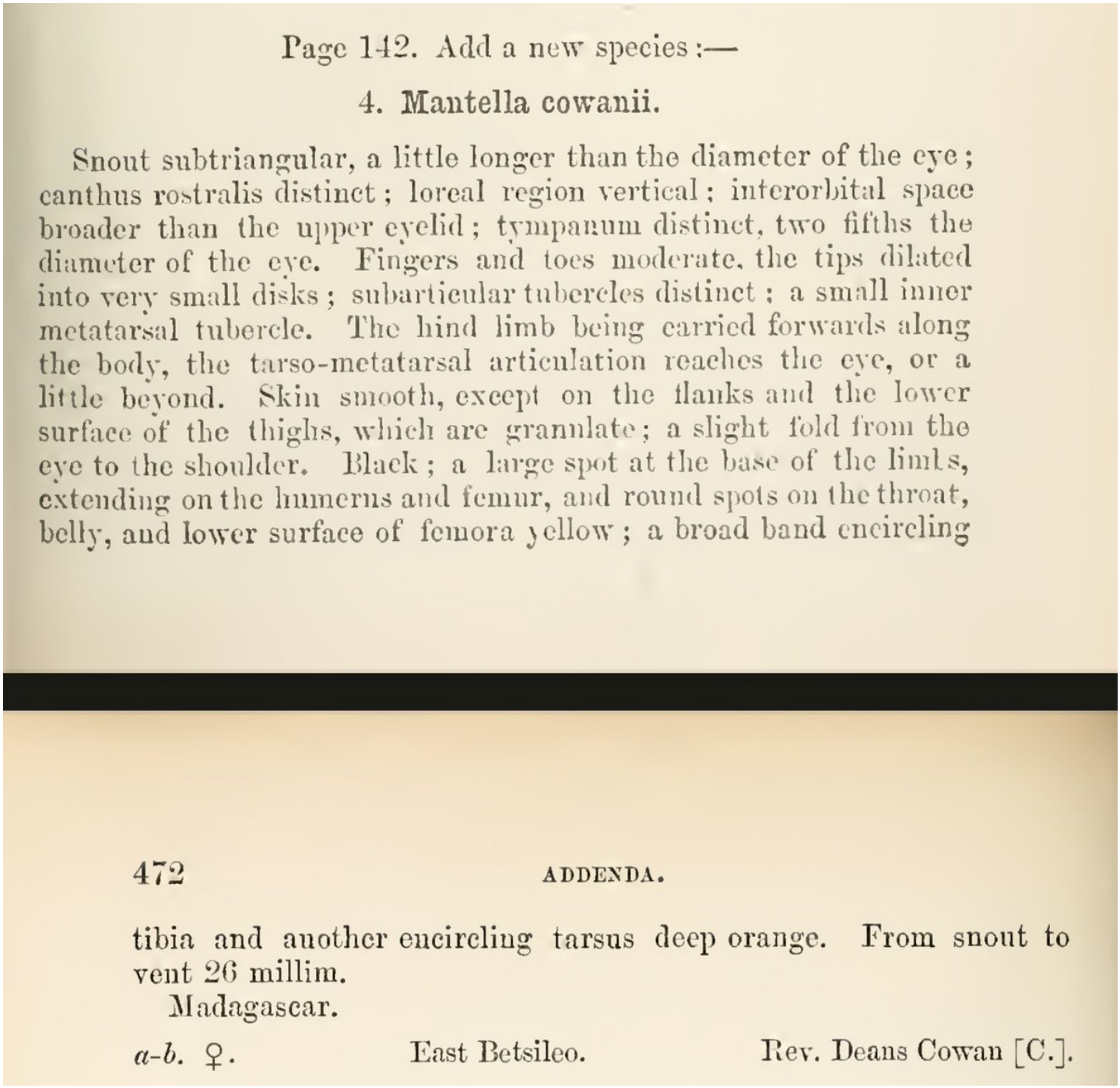
Dr Mark D. Scherz
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It's another stunning Malagasy #dartfrog/#poisonfrog for today's #FrogOfTheDay, #42 Mantella cowani Boulenger, 1882! A highly threatened, actively conserved and managed frog from the highlands of central #Madagascar
#MadagascarFrogs
■D.Edmonds/CalPhotos



This thread will cover only a tiny fraction of the work on Mantella cowanii because, being so charismatic and threatened, it has received quite a bit of attention.
#MadagascarFrogs

We start at the very beginning: the first specimens, two females, were collected by Reverend Deans Cowan in East Betsileo, Madagascar, and sent to London, where George Albert Boulenger described the species in 1882.
#MadagascarFrogs



Page 142. Add a new species :—

4. **Mantella cowanii.**

Snout subtriangular, a little longer than the diameter of the eye; canthus rostralis distinct; loreal region vertical; interorbital space broader than the upper eyelid; tympanum distinct, two fifths the diameter of the eye. Fingers and toes moderate, the tips dilated into very small disks; subarticular tubercles distinct; a small inner metatarsal tubercle. The hind limb being carried forwards along the body, the tarso-metatarsal articulation reaches the eye, or a little beyond. Skin smooth, except on the flanks and the lower surface of the thighs, which are granulate; a slight fold from the eye to the shoulder. Black; a large spot at the base of the limbs, extending on the humerus and femur, and round spots on the throat, belly, and lower surface of femora yellow; a broad band encircling

472 ADDENDA.

tibia and another encircling tarsus deep orange. From snout to vent 26 millim.

Madagascar.

a-b. ♀. East Betsileo. Rev. Deans Cowan [C.].

Boulenger placed the species in his new genus, Mantella, along with ebenaui, betsileo, and madagascariensis. He recognised that the other Malagasy poison frogs were distinct from the Dendrobates of the Americas, although he did keep them in the Dendrobatidae.
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As more specimens were collected, it became clear that the species was highly variable. In 1978, Jean Guibé wrote with interest about this variability, describing a new subspecies, M. cowani nigricans—today a full species. #MadagascarFrogs
https://t.co/dwaHMbrYbj

Mantella cowani Boulenger, 1882

(fig. 193, 195 à 197, 199 à 203 et 205 à 209)

M. cowani Boulenger, 1882, Cat. Batr. Sal. Brit. Mus., éd. 2, p. 471 (Est Betsileo. Syntypes B. M.).

M. baroni Boulenger, 1888, Ann. Mag. Nat. Hist., sér. 6, p. 106, pl. 6, fig. 2 (Madagascar. Holotype B. M.).

Phrynomantis maculatus Thominot, 1889, Bull. Soc. philom. Paris, sér. 8, 1, p. 21 (Ile de la Réunion. Syntypes M. H. N. P. 6807 et 6807 A, B et C).

Articulation tibio-tarsienne atteignant le tympan ou l'oeil.

Typiquement noirâtre avec de grosses taches claires arrondies à la racine des membres, l'ensemble délimite ainsi une sorte de grande croix noire sur le dos. Région canthale et rebord palpébral soulignés de blanc. Face inférieure du corps noir taché de clair. Tibias et tarses, ainsi que le pied, jaunes avec des taches ou des barres noires irrégulières. La teinte jaune peut envahir parfois une partie plus ou moins importante de la cuisse.

M. cowani offre une importante variabilité de la coloration due en particulier à une extension des taches axillaires et inguinales claires qui en-

vahissent progressivement l'ensemble de la face dorsale. Cet envahissement intéresse d'abord les taches axillaires puis les taches inguinales pour aboutir à des individus à dos presque entièrement clair, cette teinte pouvant gagner les flancs et même les membres. Parfois, au contraire, les taches claires de la racine des membres se réduisent considérablement et finissent par disparaître, le corps et les pattes sont alors uniformément noirs. De tels individus mélaniques se rencontrent en particulier dans le massif du Marojezy, ils correspondent à une sous-espèce: *M. cowani nigricans* n. subsp.

Although Guibé was wrong about the affinities of those two species, it is true that there is astounding variability of colour in this (and other) Mantella species, and that they evidently hybridise with other species.

#MadagascarFrogs

■B.Freiermuth/CalPhotos



Little was known about Mantella cowanii in the wild until the 1990s. By 1999, when Miguel Vences et al. published a revision of Mantella, it was known from a few different locations, but populations between it and M. baroni posed challenges to identification.
#MadagascarFrogs

These frogs occur in bizarre habitat in central Madagascar, often with wet, exposed rocks interspersed with low bushes.
■Mantella cowanii Action Plan, 2021–2025 (on which more below)



The first (?) DNA-based phylogeny came out in 2002, confirming close affinity with M. baroni and M. nigricans, and showing that Malagasy poison frogs may have Müllerian mimicry generating repeated colour pattern evolution. https://t.co/4qqzbiiAev #MadagascarFrogs

The hybridisation of M. cowanii with M. baroni received a lot of interest, in part because the species are generally morphologically and ecologically distinct.
https://t.co/VMFGZ7tP0Y
https://t.co/9uFZ7KBRzZ

International interest has always been strong in the beautiful #Mantella #frogs, so M. cowanii were targeted for the pet trade. Between 1988 and 2003, some 12,877 individuals were reportedly exported from Madagascar.
https://t.co/gJXip5xMTv
#MadagascarFrogs

In 2005, @CITES imposed a zero quota on M. cowanii, effectively banning export. For a species known from only a few locations in threatened habitat, and low fecundity (Tessa et al., see link), harvesting at these rates was unsustainable.
#MadagascarFrogs
https://t.co/SAON3F2VqF

Until 2014, Mantella cowanii was listed as Critically Endangered, but it was then downgraded to Endangered. Apparently the population declines seen until 2003 were halted by the cessation of trade. https://t.co/2rS29qFNQT
#MadagascarFrogs

Nevertheless, Mantella cowanii is heavily threatened. Representatives of @ASG_IUCN @Voakajy @amphibiansorg @chesterzoo and other organisations are actively involved in its conservation. A new action plan for 2021–2025 was just released.
#MadagascarFrogs
https://t.co/ozm89CMSSR

Mantella cowanii Action Plan 2021–2025



As I understand it, captive populations of Mantella cowanii are being maintained. So, if extirpated, it might be possible to reintroduce this frog, as long as habitat remains available. So there is hope for the 'harlequin' mantella! #MadagascarFrogs