



The 'New Species Syndrome' in Sri Lankan herpetology: a cautionary note

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Introduction

Following a decline in the wake of Independence from Great Britain in 1948 (Pethiyagoda, 2007), the past decade has seen an acceleration in the pace of biodiversity exploration in Sri Lanka (Pethiyagoda, 2005). Herpetology in the island has been a particular beneficiary of this trend, with dozens of new species of amphibians and reptiles being discovered and described during this period. These descriptions have, for the most part, been of great value and have in many cases already contributed to the national conservation-planning and IUCN Red-Listing processes. While this work has been mostly of high quality, the last few years have also witnessed a number of publications by authors unfamiliar with taxonomic methodology and in particular, the International Code of Zoological Nomenclature (ICZN, 1999: hereafter, 'the Code'), resulting in the establishment of several unnecessary new names and the invalid designation of a number of new types. These actions are likely to cause considerable confusion among the increasing number of workers in the biodiversity sciences in Sri Lanka, many of whom lack specialized taxonomic training. They will also require future taxonomists

to invest considerable effort to resolve the plethora of nomenclatural errors and incorrect typifications resulting from these works.

Manamendra-Arachchi *et al.* (2007) and Manamendra-Arachchi & Pethiyagoda (2007) have drawn attention to three papers—on the gekkonid genus *Cnemaspis* and the colubrid genus *Boiga*—that have contributed to this confusion and seek to resolve some of the nomenclatural problems resulting from Samarawickrama *et al.* (2006), Wickramasinghe (2006) and Wickramasinghe & Munindradasa (2007). Here I address the issue of invalid typification in these three works and comment on nomenclatural questions arising also from De Alwis *et al.* (2006). I also comment on several matters surrounding the gratuitous description of new species in Sri Lankan herpetology; call for improved editorial standards in the journals publishing such works; and recommend the adoption of higher ethical standards among authors publishing in the taxonomic literature.

This is not the first time a critique of this nature has been published in relation to South Asian taxonomy. Fraser-Jenkins (1997) provided an excellent

analysis of the predicament of pteridology in the Indian subcontinent, in which he, with uncanny prescience, put his finger on exactly the same problems that (*mutatis mutandis*) also bedevil Sri Lankan herpetology:

‘The increasing abundance of poorly researched, erroneous “new species” in parts of Asia seriously threatens to overwhelm the ability and time available for more authoritative and international specialists to evaluate them and identify them properly as known species, which is the case for the great majority of such names. If this tendency is allowed to continue as a result of the lack of editorial filtering of papers sent for publication a situation similar to that in Chinese pteridology may develop with real species being poorly understood because they are divided under an excess of false names. Authors unfamiliar with variation in the species concerned or with the basic literature for each genus may be tempted to publish new names whenever they cannot identify a specimen rapidly, though it may merely be an individual representing just a part of the range of phenotypic variation in a known species. Similarly they may publish as new any species unfamiliar to them in their area, even though it exists in the literature or is represented in herbaria that they have not consulted. That publishing more papers and “new species” evidently assists careers in India unduly as a major criterion of success is serious cause for concern. The end result, as in China, may be that no-one takes seriously apparent “new species” published from the area, nor will they identify their collections properly, leading to the eventual implosion of taxonomy altogether in a chain-reaction of “new species syndrome”. New varieties of uncertain status are also being published apace in Indian pteridology, but are usually of no taxonomic significance and should not have been named.

‘It is pleaded that local floristic accounts of authors’ collections stop aiming to publish spurious new taxa. Instead there is a crying need for detailed and geographically far-reaching monographic studies of genera, with international collaboration whenever possible and appropriate, and authors should also familiarise themselves with extra-Indian Asiatic species as much as possible, as well as with essential herbarium collections in both Indian and foreign herbaria which are at present ignored and thus rendered effectively useless.’

I shall deal with Wickramasinghe (2006) and Wickramasinghe and Munindradasa (2007) jointly because they involve the same genus (*Cnemaspis*), the same first author and the same journal. As pointed out by Manamendra-Arachchi *et al.* (2007), *Cnemaspis*

ranwellai is an unnecessary new name, being an objective junior synonym of *Cnemaspis scalpensis*. Manamendra-Arachchi & Pethiyagoda (2007) also show that the colubrid snake *Boiga ranawanei* is an objective junior synonym of *Boiga beddomei*. These junior names should be discarded before they enter the general literature, especially the conservation listings.

Cnemaspis

Given the scope of their report, the descriptor “Review” is inappropriate in the title of Wickramasinghe and Munindradasa (2007). A review in taxonomy is “a publication in which an author critically examines previous work and material on a group. It brings together [all] current information on the group...” (Winston, 1999: 120). Wickramasinghe and Munindradasa (2007) provide neither a list of existing type material nor a full listing of previous work: e.g., they omit Bauer *et al.* (2007), which was published online on 5 April, 2007 and widely circulated the same day, a mere two weeks after their own manuscript was accepted for publication and almost two months before its actual publication by *Zootaxa*. This journal, especially because it is an electronic publication, would almost certainly have permitted the authors to include so important a corrigendum in proof.

Cnemaspis kandiana. Perhaps the most disturbing feature of Wickramasinghe and Munindradasa (2007) is the authors’ lack of understanding of the various categories of type specimens. For example, they list as ‘syntypes’ of *Cnemaspis kandiana* (Kelaart, 1853), four specimens “from Gannoruwa, Kandy, Sri Lanka, (N 07°16’52.8”, E 080°35’54.2”, elevation 572 m), 22.11.2006, collected by L. J. Mendis Wickramasinghe”. These cannot be syntypes (or any other category of types) of *C. kandiana*, the actual syntypes of which have been at The Natural History Museum, London, since 1853. The authors appear to have been unaware that syntypes must be “the specimens on which the author [i.e., Kelaart, 1853, misspelled Kellart] established a nominal species-group taxon” (Art. 72.1.1 of the Code), and not examples collected subsequently.

Cnemaspis tropidogaster. The foregoing is true also of the designation of four syntypes for *C. tropidogaster* (Boulenger, 1885) by Wickramasinghe and Munindradasa (2007): there is no provision in the Code for the *post-facto* designation of syntypes; in any event, a lectotype (BMNH 71.12.14.49) has now been designated and is extant for this species (see Manamendra-Arachchi *et al.*, 2007).

Cnemaspis podihuna. Wickramasinghe and Munindradasa (2007) also designated a ‘neotype’ and three recently-collected ‘syntypes’ for *C. podihuna* Deraniyagala, 1944. They rejected the validity of the holotype on the grounds that “The voucher specimen of *C. podihuna* deposited in the National Museum of Sri Lanka (NMSL), in place of the misplaced type specimen (Deraniyagala 1944), morphologically differs from the type [i.e., original] description. Morphometric parameters of the replaced specimen [sic] currently available in the NMSL did not match with the measurements of the specimen collected from the type locality.” They further observed that the holotype (referred to as a voucher specimen) had “no bottle number [and] no specimen number”.

Deraniyagala (1944) made no mention that a “voucher specimen of *C. podihuna* [was] deposited in the National Museum of Sri Lanka (NMSL), in place of the misplaced type specimen” and the reasons for Wickramasinghe and Munindradasa (2007) attributing this action to him are not clear. Apart from the irrelevant reference to Deraniyagala (1944), no evidence has been provided to substantiate their assertion that the type has been misplaced, or that it has been replaced by a “voucher specimen”. When examined in 1994, the label in the jar containing the holotype read “*Cnemaspis podihuna* TYPE” under which was written “RAS 1944 XXXVI p. 226”. The upper part of the label has since torn off, leaving only the lower portion that reads “RAS 1944 XXXVI p. 226”, which is a reference to the volume and page of the *Journal of the Royal Asiatic Society (Ceylon Branch)* in which the original description was published.

The holotype was examined by Manamendra-Arachchi *et al.* (2007), who found that it is entirely consistent with the original description: Wickramasinghe and Munindradasa (2007) had incorrectly assessed the characters by which they thought it differed from the original description. Their statement, “These facts lead to the conclusion that [the] specimen under discussion is not *C. podihuna* and it belongs to *C. molligodai* sp. nov., one of the new species described in the present work” is therefore erroneous, and their designation of a neotype redundant and invalid. Their argument that the holotype does not “match with the measurements of the specimen collected from the type locality” is irrelevant, as is the fact that the holotype had “no bottle number, no specimen number”, which is a matter of purely curatorial—and not nomenclatural—concern.

The Code does not permit the designation of a neotype when a name-bearing type is extant, and the designation of NMSL 20061001 as the neotype of

C. podihuna by Wickramasinghe and Munindradasa (2007) is rejected in terms of Art. 75.8 of the Code. Deraniyagala’s type is here treated as ‘rediscovered’ and restored as the name-bearing type of *Cnemaspis podihuna* Deraniyagala, 1944 (see also account of *C. podihuna* in Manamendra-Arachchi *et al.*, 2007). Further, as explained above, the *post-facto* designation of syntypes for *Cnemaspis podihuna* by Wickramasinghe and Munindradasa (2007) is erroneous and invalid.

Sadly, it appears that these authors had not troubled to advise themselves of the provisions of the Code, for which there is little excuse especially given that it is available as a free download (<http://www.iczn.org/iczn/index.jsp>). This being so, their understanding of the various categories of types is clearly flawed.

Cnemaspis scalpensis. This is particularly evident in the case of *C. scalpensis* (Ferguson, 1877), for which they designated a ‘neotype’ together (bizarrely) with three new ‘syntypes’. Given that there are no extant types for this species (Manamendra-Arachchi *et al.*, 2007), and because the neotype designation does not satisfy the Qualifying Conditions of the Code, it is necessary here explicitly to reject it, in support of which I adduce the following reasons:

1. It does not include “a statement that it is designated with the express purpose of clarifying the taxonomic status or the type locality of a nominal taxon” as required by Art. 75.3.1 of the Code.
2. It does not include a statement of “the author’s reasons for believing the name-bearing type specimen(s)... to be lost or destroyed, and the steps that had been take to trace it or them”, as required by Art. 75.3.4 of the Code.
3. It does not include a statement that “the neotype is consistent with what is known of the former name-bearing type from the original description and from other sources” as required by Art. 75.3.5 of the Code.
4. It does not include “evidence that the neotype came as nearly as practicable from the original type locality” as recommended by Art. 75.3.6 of the Code. Wickramasinghe and Munindradasa (2007) state that their ‘neotype’ is from Agarapatana (“N06°50’58.1”, E080°40’35.0”, elevation 1524 m”) whereas Ferguson (1877) stated that the specimens before him came from “the Kandyan country and Hewissa”. The “Kandyan country” is interpreted to mean the countryside around the

city of Kandy (elevation ~ 500 m), which is ~ 50 km distant from Agarapatana. There is no place-name "Hewissa" dating to the 1870s in Sri Lanka; the nearest similar transliterations are Hewawissa (N07°13', E80°44', elevation ~ 650 m, ~ 40 km distant from Agarapatana) and Hewessa Dola (a stream, N06°26', E80°16', elevation ~ 150 m, approximately 50 km distant from Agarapatana, which, from its proximity to Haycock Mountain—see Ferguson (1877: 10)—is evidently the location he intended). The place names given by Ferguson (1877) for the other species he listed in that work were specific: e.g., Colombo, Galle, Northern Province, Bolgoda Lake, Trincomalee, Jaffna, Peradeniya, Matale, Ramboda, Nuwara Eliya... This being so, the type locality provided by him for *C. scalpensis* must, in the absence of contrary evidence, be treated specifically as "the Kandyan country and Hewissa" and cannot be extended to include Agarapatana. Indeed, even the exhaustive gazetteer of Laurie (1896) does not list it. Agarapatana cannot, either in terms of distance from Kandy or elevation, therefore be considered to lie within or near the type locality.

5. Finally, it is clear from the examples provided herein that Wickramasinghe and Munindradasa (2007) had no understanding of the various categories of types provided for in the Code. They are likely, therefore, not to have realized the significance or implications of a neotype designation also in this case and appear to have used the term without understanding its meaning, as they did in designating without validity neotypes and/or syntypes for *C. kandiana*, *C. tropidogaster* and *C. podihuna*.

For the foregoing reasons, the designation of NMSL 20061101 as the neotype of *Gymnodactylus scalpensis* Ferguson, 1877, must be rejected. The designations of NMSL 20061102–4 as syntypes of *Gymnodactylus scalpensis* is also invalid in terms of Art. 72.1.1 of the Code.

***Cnemaspis ranwellai*.** The case of *Cnemaspis ranwellai* Wickramasinghe, 2006 (type locality "Gannoruwa, near Kandy"), is in many respects similar. The authors chose to ignore the existence of *C. scalpensis* (Ferguson, 1877) in the synonymy and proceeded to describe and name an unnecessary and indistinguishable new species of gecko from within its type locality ("the Kandyan country and Hewissa"). *Cnemaspis ranwellai* is now a junior objective synonym of *C. scalpensis* (see Manamendra-Arachchi *et al.*, 2007).

Boiga

Samarawickrama *et al.* (2005) made available the name *Boiga ranawanei*, the type locality of which was Bulawaththa, Gannoruwa Forest, about 2 km from Peradeniya in the suburbs of Kandy. They acknowledged that *B. beddomei* (Wall, 1909), type locality Peradeniya, lay buried in the synonymy and stated that the types of that species had "been deposited in the Bombay Natural History National [sic] Museum of India", for which information they cited Wall (1909) and Das *et al.* (1998) as authorities. In point of fact, neither Wall (1909) nor Das *et al.* (1998) make any reference to the whereabouts of these types, which appears to suggest that Samarawickrama *et al.* (2005) cited these works without reading them. In any event, they failed to examine or obtain data relating to the type specimens of *B. beddomei* that they argued were in the museum of the Bombay Natural History Society.

They then made the following claim: "However the view was given (in particular by two leading herpetologists in Sri Lanka) that *Boiga beddomei* is a junior synonym for *B. ceylonensis* (De Silva P. H. D. H., 1980; De Silva A., 1990). Species status and distribution of *B. beddomei* in Sri Lanka are still disputable." Neither De Silva (1980) nor De Silva (1990), however, claimed to have seen the types of *B. beddomei*; despite being "leading herpetologists", they cannot have known anything about that species beyond the description provided by Wall (1909), which was also presumably available also to Samarawickrama *et al.* (2005). As shown by Manamendra-Arachchi & Pethiyagoda (2007), the original description and type locality of *Boiga beddomei* (Wall, 1909) are fully consistent with that of *B. ranawanei*, which is an unnecessary name for *B. beddomei*. In this case, Samarawickrama *et al.* (2005) had before them all the information they required to avoid creating an unnecessary name, but persisted regardless in choosing to ignore it.

Boiga ranawanei is now, in consequence of the neotype designation for *Dipsadomorphus beddomei* by Manamendra-Arachchi & Pethiyagoda (2007), a junior objective synonym of *B. beddomei*.

Philautus buttalai

De Alwis *et al.* (2006) published the new-species name *Philautus buttalai* in the proceedings of an university symposium. The 'paper' is presumed to be an abstract, but given that the authors provided a scientific name, diagnosis and description, and referred to the taxon as a new species, they evidently intended the name to become available from this publication. Given also that the paper was published

in a symposium proceedings and does not explicitly claim to be an abstract, it is arguably a "published work" sensu Art. 9 of the Code, in particular, Art 9.9, which excludes "abstracts of articles, papers, posters, texts of lectures, and similar materials when issued primarily to participants at meetings, symposia, colloquia or congresses."

The name *Philautus buttalai*, however, fails to satisfy the following condition for availability of species-group names prescribed by the Code: "A proposal of a new nominal species-group taxon after 1999... must include the fixation of a holotype [Art. 16.4] (see Article 73.1) or syntypes (Art. 73.2)." No name-bearing type, however, was fixed for the species as required by Art. 72.3 of the Code, and the name *Philautus buttalai* is therefore a *nomen nudum* and unavailable for use as a scientific name.

In note in passing that although the authors failed to provide an etymological derivation for it, the specific name is also not correctly formulated. This alludes to the putative type locality, Buttala, in which case the correct formulation should have been 'buttalaensis' (i.e., the geographic name in the adjectival case) and not the personal possessive, 'buttalai'. Likewise, the now-synonymized name *Boiga ranawanei*, stated in the etymology of Samarawickrama *et al.* (2005) to be derived from the personal name Ranawana, is also improperly terminated: correctly Latinized, the genitive singular case-ending *-i* should be added to the entire personal name.

Peer review and ethics

It is important that both taxonomic authors and taxonomic journal editors recognize the need to provide users of taxon names with a stable and reliable nomenclature. This cannot be assured in the absence of scrupulous peer review. Journal editors in particular need also to acknowledge that there is a distinction between 'rapid publication' and 'hasty publication'.

Such haste also raises ethical questions given that Wickramasinghe and Munindradasa were informed by me of an on-going taxonomic revision of Sri Lankan *Cnemaspis* by Manamendra-Arachchi *et al.* when they were my guests at the Wildlife Heritage Trust (WHT) field station at Agarapatana from 13–15 September, 2006. Further, Wickramasinghe (together with some of those acknowledged as having commented on the manuscript) was also present at a Red List review meeting at the IUCN office in Colombo on 13 June, 2006, where Manamendra-Arachchi announced that he had such a revision in progress, involving the description of a number of new species, and that it would be submitted for

publication within the year, the delay being due to the need to examine all the historical type material from Sri Lanka and peninsular India scattered in museums in Asia and Europe. It is regrettable that these authors failed also to abide by the Code of Ethics of the Code (Appendix A(2)), which states: "A zoologist should not publish a new name if he or she has reason to believe that another person has already recognized the same taxon and intends to establish a name for it... A zoologist in such a position should communicate with the other person (or their representatives) and only feel free to establish a new name if that person has failed to do so in a reasonable period (not less than a year)."

Wickramasinghe's (2006) and Wickramasinghe and Munindradasa's (2007) studies were published in *Zootaxa*, a widely-indexed "peer-reviewed international journal for rapid publication of high quality papers" (<http://www.mapress.com/zootaxa/support/author.html>, accessed 2 June, 2007). The journal also maintains, in keeping with the norm for scholarly periodicals, that "When a manuscript is received by the Editor, he/she will have it reviewed by at least two peers qualified to evaluate the manuscript". The reviewers of Wickramasinghe and Munindradasa (2007) are, of course, anonymous. That said, it is difficult to conceive how a taxonomist-reviewer could read a species-description headed, for example, "*Cnemaspis kandiana* (Kelaart, 1853)" and then not see that something was amiss when noting the designation of syntypes collected on 22 November 2006. Such examples of glaring taxonomic impropriety occur frequently though the 63-page text of Wickramasinghe and Munindradasa (2007), and it is regrettable that neither the editors nor the reviewers spotted them.

Quite apart from peer review, it is clear that the text of Wickramasinghe and Munindradasa (2007) could have benefited greatly from more extensive copy editing. In the Abstract alone, there is reference to "endemicity" when what is meant is "endemism"; and a statement that "the species *C. scalpensis* is erected [*sic*]", when in fact *C. scalpensis* became available from Kelaart (1853). Typographical errors are so numerous as to render the text difficult to read: "carinated", presumably meaning keeled; "internarsals" for internasals; "preannal" for peanal; "femmorals" for femoral; "verntrols" for ventrols; "synonamed" for synonymized; "Southeastern" for Southeastern; "Thmilnadu" for Tamil Nadu; "natueal histori" for natural history; "Proddromus" for Prodrumus; "Berma" for Burma; "Tayobald" for Theobald; "Sengupha" for Sengupta; and "fourth" misspelled "forth" no less than 12 times. On one

occasion, even the author's own name has been spelt incorrectly as "Wikaramasinghe".

While it would be wrong to deny that many taxonomists derive pleasure from coining names for species they discover, it should be remembered that the creation of new names is not an end in itself. It is important, for example, to exercise 'nomenclatural parsimony' (Bossuyt & Dubois, 2001) by examining the synonymy for old available names, the species relating to which may not have been described sufficiently well to allow them to be unambiguously assigned to extant species and the types of which may no longer exist. It was on this principle that, for example, Manamendra-Arachchi & Pethiyagoda (2005) assigned "new species" to old names such as *Philautus sarasinorum*, *P. pleurotaenia* and *P. stictomerus*, thereby avoiding the creation of (unnecessary) new names even though this might appear to have been justified. Quite apart from sound taxonomic practice, good science also mandates that all sources of data be verified and irrelevant or incorrect ones eliminated, and that logical hypotheses be derived in the context of all available data.

It is widely acknowledged that there is a worldwide dearth of taxonomists that has resulted in the pace of competent species descriptions (especially the framework of taxonomic revisions) lagging behind species discovery. This situation will not be helped if taxonomists are called upon to invest much of their time and effort in cleaning up a chaotic literature resulting from the careless and irresponsible publication of nomenclatural acts. The proliferation of redundant new-species names and the expansion of the already rich synonymy can only lead to confusion. Such practices lead also to 'taxonomic inflation' (Isaac *et al.*, 2004) and can have serious implications for the conservation planning process (Köhler *et al.*, 2005). Should that happen, the "eventual implosion of taxonomy altogether in a chain-reaction of 'new species syndrome'" predicted by Fraser-Jenkins (1999), would seem inevitable.

The foregoing does not seek to advocate restriction of the freedom of expression of scientists in relation to taxonomic practice: indeed, there is an urgent need for more taxonomists, and greater productivity among them, in order to describe the wealth of undescribed species being discovered in biodiversity-rich countries like Sri Lanka. Neither does it espouse the view that good taxonomy and nomenclatural practice are the monopoly of a chosen few. Indeed, it is gratifying that a growing number of 'field savvy' young people are engaging in biodiversity exploration and research in Sri Lanka. What is more, there is an increasing

urgency to discover and describe species before they vanish, as indeed more than 20 species of Sri Lankan amphibians already appear to have done (Meegaskumbura *et al.*, 2007). As necessary as this urgency is, it is unrealistic to expect all such descriptions to be done in the framework of exhaustive taxonomic revisions, which necessarily involve the review of a difficult-to-access historical literature and the (almost prohibitively expensive) examination of old type specimens scattered among the world's museums. Kuramoto & Joshy (2007) justifiably note that "The publication activity of researchers should not be discouraged by emphasizing or expecting the completeness of the data". Although such publications have, in the case of three papers describing new anuran species from India's Western Ghats, been pejoratively labelled 'pernicious' by Karthikeyan *et al.* (2007), they do help draw attention to newly-discovered taxa, many of which may be threatened. In such cases, an incomplete but description that provides at least a valid name for conservation action may be better than no description at all.

That said, it is incumbent on all scientists to inform themselves of—and comply with—the rules, guidelines, procedures and responsibilities relevant to their science (in the case of zoological taxonomists, the Code); and it is in large measure the responsibility of journal editors to seek to ensure that this is done. It should not be forgotten that taxonomy is a challenging and exacting discipline: "If one [were] to construct a job description for a modern taxonomist, it would include historian, detective, linguist, lawyer and biologist. A formidable requirement—I know of no other scientific discipline which makes such demands" (Ng, 1998).

Finally, I mention the unmentionable. There is undoubtedly a perception on the part of some developed-country scientists that the quality of science practiced in many developing countries is somehow substandard. While this may seem harsh (especially given that developing countries often lack scientific resources), it is incumbent on scientists in developing nations to work responsibly so as to produce the best science possible given the resources at their disposal. For their part, journal editors appear, by and large, to be alive to the constraints developing-country scientists face; many editors (and indeed, reviewers) show a sympathetic appreciation of these problems and often go the extra mile to assist authors to improve their manuscripts. But this is not to say that they should lower the bar for authors they perceive as being in some way disadvantaged: that would not only be patronizing,

it would also do a great disservice to the scientists concerned, and indeed, to science itself.

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