



<http://dx.doi.org/10.11646/zootaxa.3838.5.8>

<http://zoobank.org/urn:lsid:zoobank.org:pub:87DD8AF3-CB72-4EBD-9AA9-5B1E2439ABFE>

Is *Dicroglossidae* Anderson, 1871 (Amphibia, Anura) an available nomen?

ANNEMARIE OHLER¹ & ALAIN DUBOIS

Muséum National d'Histoire Naturelle, Département Systématique et Evolution, UMR7205 ISYEB, CP 30, 25 rue Cuvier, 75005 Paris

¹Corresponding autho. E-mail: ohler@mnhn.fr

Abbreviations used: BMNH, Natural History Museum, London; SVL, snout–vent length; ZMB, Zoologisch Museum, Berlin.

Anderson (1871a: 38) mentioned the family nomen *DICROGLOSSIDAE*, without any comment, in a list of specimens of the collections of the Indian Museum of Calcutta (now the Zoological Survey of India). He referred to this family a single species, *Xenophrys monticola*, a nomen given by Günther (1864) to a species of *MEGOPHRYIDAE* from Darjeeling and Khasi Hills (India) which has a complex nomenclatural history (Dubois 1989, 1992; Deuti *et al.* submitted). Dubois (1987: 57), considering that the nomen *DICROGLOSSIDAE* had been based on the generic nomen *Dicroglossus* Günther, 1860, applied it to a family group taxon, the tribe *DICROGLOSSINI*, for which he proposed a diagnosis. The genus *Dicroglossus* had been erected by Günther (1860), 11 years before Anderson's (1871a) paper, for the unique species *Dicroglossus adolfi*. Boulenger (1882: 17) stated that this specific nomen was a subjective junior synonym of *Rana cyanophlyctis* Schneider, 1799, and therefore *Dicroglossus* a subjective junior synonym of *Rana* Linnaeus, 1758 (Boulenger, 1882: 7). The synonymy of these two species nomina has been accepted as valid until now by all authors, and we here confirm it, having examined the symphoronts (syntypes) of *Rana cyanophlyctis* (ZMB 3198, adult female, SVL 50.0 mm; ZMB 3197, adult female, SVL 44.7 mm) and of *Dicroglossus adolfi* (BMNH 1947.2.4.60, adult female, SVL 38.6 mm; BMNH 1947.2.4.61, adult male, SVL 33.1 mm; BMNH 1947.2.25.46, adult male, SVL 39.0 mm). Dubois (1980: 158, 1981: 238) referred the species *cyanophlyctis* to the genus *Euphlyctis* Fitzinger, 1843, where it still stands nowadays (Frost *et al.* 2006; Joshy *et al.* 2009). The nomen *DICROGLOSSINI* was subsequently upgraded to the rank subfamily, as *DICROGLOSSINAE* (Dubois 1992: 309, 313; Roelants *et al.* 2004: 732), then to the rank family, as *DICROGLOSSIDAE* (Frost *et al.* 2006: 241). The taxon at stake is currently recognized as valid by most authors, as the family *DICROGLOSSIDAE* Anderson, 1871 (Roelants *et al.* 2007; Fei *et al.* 2010: 25; Blackburn & Wake 2011: 42; Pyron & Wiens 2011: 579; Fei *et al.* 2012: 436; Vitt & Caldwell 2014: 510).

All these uses of the nomen *DICROGLOSSIDAE* or of its avatars rely on Dubois' (1987) interpretation of *DICROGLOSSIDAE* Anderson, 1871 as an available family nomen, according to Article 12.2.4 of the *International Code of Zoological Nomenclature* (Anonymous 1999), for having been based on the type-genus *Dicroglossus* Günther, 1860, a then available generic nomen which was presumably considered valid by Anderson (1871a). However, it should be noted that neither this generic nomen, nor its type-species *Dicroglossus adolfi*, were mentioned by Anderson, neither in his 1871a paper nor in his contemporaneous 1871b paper.

Careful examination of these old texts leads us to propose here another interpretation. We considered both the facts that the only species mentioned in his "*DICROGLOSSIDAE*" by Anderson (1871a: 39) was *Xenophrys monticola* (doubtless referring to *Xenophrys monticola* Günther, 1864, now in the family *MEGOPHRYIDAE* Bonaparte, 1850), and that the classification he used in this paper was clearly that of Günther (1858, 1859), which had also been used by Theobald (1868) in his catalogue of the collection of the Calcutta Museum. In Günther (1859), there was no family *DICROGLOSSIDAE*, but a family *DISCOGLOSSIDAE*, which included the genera *Chiroleptes* (now *Litoria*, in the *HYLIDAE* Rafinesque, 1815), *Discoglossus* (type-genus), *Leptobrachium* (*MEGOPHRYIDAE*), *Megalophrys* (*MEGOPHRYIDAE*) and *Pelodytes* (*PELODYTIDAE*). When describing the genus *Xenophrys* and its unique species *X. monticola*, Günther (1864: 414) did not use a familial classification of amphibians but stated that the new taxon was "*similar to Megalophrys montana*".

Theobald (1868: 62) referred to the genus *Megalophrys* Wagler, 1830 (now *Megophrys* Kuhl & Van Hasselt, 1822)

Literature cited

- Anderson, J. (1871a) A list of the reptilian accession to the Indian Museum, Calcutta, from 1865 to 1870, with a description of some new species. *Journal of Asiatic Society of Bengal*, 40, 12–39.
- Anderson, J. (1871b) On some Indian reptiles. *Proceedings of the Zoological Society of London*, 1871, 149–211.
- Blackburn, D.C. & Wake, D.B. (2011) Class Amphibia Gray, 1825. *Zootaxa*, 3148, 39–55.
- Boulenger, G.A. (1882) *Catalogue of the Batrachia Salientia s. Ecaudata in the collection of the British Museum*. Taylor & Francis, London, i–xvi + 1–503, pl. 1–30.
- Clarke, B.T. (1981) Comparative osteology and evolutionary relationships in the African Raninae (Anura Ranidae). *Monitore zoologico italiano*, 15, Supplement, 285–331.
- Deckert, K. (1938) Beiträge zur Osteologie und Systematik ranider Froschlurche. *Sitzungsberichte der Gesellschaft Naturforschender Freunde Berlin*, 1938, 127–184.
- Deuti, K., Vasudevan, K. & Ohler, A. (submitted) Nomenclatural questions in early *Xenophrys* nomina (Megophryidae, Amphibia): description of a long-known species from Darjeeling.
- Dubois, A. (1980) L'influence de l'homme sur la répartition des Amphibiens dans l'Himalaya central et occidental. *Comptes rendus de la Société de Biogéographie*, 55, 155–178.
- Dubois, A. (1981) Liste des genres et sous-genres nominaux de Ranoidea (Amphibiens Anoures) du monde, avec identification de leurs espèces-types: conséquences nomenclaturales. *Monitore zoologico italiano*, 15, Supplement, 225–284.
- Dubois, A. (1983) Classification et nomenclature supragénérique des Amphibiens Anoures. *Bulletin mensuel de la Société linnéenne de Lyon*, 52, 270–276.
- Dubois, A. (1984) La nomenclature supragénérique des amphibiens anoures. *Mémoires du Muséum national d'Histoire naturelle*, (Série A, Zoologie), 131, 1–64.
- Dubois, A. (1987) Miscellanea taxinomica batrachologica (2). *Alytes (Paris)*, 6, 1–9.
- Dubois, A. (1989) *Leptobrachium parvum* Boulenger 1893 (Amphibia, Anura): proposed conservation. *Alytes (Paris)*, 7, 97–100.
- Dubois, A. (1992) Case 2382. *Megophrys montana* Kuhl & van Hasselt, 1822 (Amphibia, Anura): proposed placement of both the generic and specific names on Official Lists, and *Leptobrachium parvum* Boulenger, 1893 (currently *Megophrys parva*): proposed conservation of the specific name. *Bulletin of zoological Nomenclature*, 49, 213–216.
- Fei, L., Ye, C.-Y. & Jiang, J.-P. (2010) Phylogenetic systematics of Ranidae. *Herpetologica sinica*, 12, 1–43.
- Fei, L., Ye, C. & Jiang, J. (2012) *Colored atlas of Chinese amphibians and their distributions*. Sichuan, Sichuan Publishing House of Science & Technology, 1–620.
- Frost, D.R., Grant, T., Faivovich, J., Bain, R.H., Haas, A., Haddad, C.F.B., De Sa, R.O., Channing, A., Wilkinson, M., Donnellan, S.C., Raxworthy, C.J., Campbell, J.A., Blotto, B.L., Moler, P., Drewes, R.C., Nussbaum, R.A., Lynch, J.D., Green, D.M. & Wheeler, W.C. (2006) The amphibian tree of life. *Bulletin of the American Museum of natural History*, 297, 1–370.
[http://dx.doi.org/10.1206/0003-0090\(2006\)297\[0001:tatol\]2.0.co;2](http://dx.doi.org/10.1206/0003-0090(2006)297[0001:tatol]2.0.co;2)
- Günther, A. (1858–1859) *Catalogue of the Batrachia Salientia in the collection of the British Museum*. Taylor & Francis, London, i–xvi + 1–160, pl. 1–12.
- Günther, A. (1860) Contributions to a knowledge of the reptiles of the Himalaya mountains. *Proceedings of the zoological Society*, 1860, 148–175, pl. xxv–xxviii.
- Günther, A.C.L.G. (1864) *The reptiles of British India*. Robert Hardwicke, London, i–xxvii + 1–452.
- Joshy, S.H., Alam, M.S., Kurabayashi, A., Sumida, M. & Kuramoto, M. (2009) Two new species of the genus *Euphlyctis* (Anura, Ranidae) from southwestern India, revealed by molecular and morphological comparisons. *Alytes (Paris)*, 26, 97–116.
- Laurent, R. (1950) Reptiles et batraciens de la région de Dundo (Angola du Nord-Est). (Première note). *Publicações culturais. Companhia de Diamantes de Angola*, 6, 7–17.
- Pyron, R.A. & Wiens, J.J. (2011) A large-scale phylogeny of Amphibia including over 2800 species, and a revised classification of extant frogs, salamanders, and caecilians. *Molecular Phylogenetics & Evolution*, 61, 543–583.
<http://dx.doi.org/10.1016/j.ympev.2011.06.012>
- Roelants, K., Jiang, J.P. & Bossuyt, F. (2004) Endemic ranid (Amphibia : Anura) genera in southern mountain ranges of the Indian subcontinent represent ancient frog lineages: evidence from molecular data. *Molecular Phylogenetics and Evolution*, 31, 730–740.
<http://dx.doi.org/10.1016/j.ympev.2003.09.011>
- Roelants, K., Gower, D.J., Wilkinson, M., Loader, S.P., Biju, S.D., Guillaume, K., Moriau, L. & Bossuyt, F. (2007) Global patterns of diversification in the history of modern amphibians. *Proceedings of the national Academy of Sciences of the United States of America*, 104, 887–892.
- Slater, W.L. (1892) *A list of the Batrachia of the Indian Museum*. Taylor & Francis, London, i–vii + 1–43.
- Theobald, W. (1868) Catalogue of reptiles in the Museum of the Asiatic Society of Bengal. *Journal of the Asiatic Society of Bengal*, 37 (Supplement), i–vi + 7–88 + i–iii, 4 pl.
- Vitt, L.J. & Caldwell, J.P. (2014) *Herpetology. An introductory biology of amphibians and reptiles*. Elsevier, Amsterdam, etc., i–xiv + 1–757.

APPENDIX 1. List of 50 references of works using the nomen *DICROGLOSSIDAE* (including 41 where it is in the title).

- Anonymous [Ministry of Environment] (2012) *The National Red List 2012 of Sri Lanka. Conservation Status of the Fauna and Flora*. Ministry of Environment, Colombo, Sri Lanka, i–viii + 1–476.
- Ahmed, M.F., Das, A. & Dutta S.K. (2009) *Amphibians and reptiles of Northeast India. A photographic guide*. Aaranyak, Guwahati, India, i–xiv + 1–170.
- Alam, M.S., Islam, M.M., Khan, M.M.R., Hasan, M., Wanichanon, R. & Sumida, M. (2012) Postmating isolation in six species of three genera (*Hoplobatrachus*, *Euphylyctis* and *Fejervarya*) from Family Dicroglossidae (Anura), with special reference to spontaneous production of allotriplets. *Zoological Science*, 29, 743–752.
- Altig, R., Lathrop, A. & Murphy, R.W. (2009) Morphology of southeast Asian tadpoles: *Hoplobatrachus chinensis* (Dicroglossidae), *Leptolalax pelodytoides* (Megophryidae), and other megophryids. *Russian Journal of Herpetology*, 16, 126–130.
- Barej, M.F., Schmitz, A., Guenther, R., Loader, S.P., Mahlow, K. & Roedel, M.-O. (2014) The first endemic West African vertebrate family – a new anuran family highlighting the uniqueness of the Upper Guinean biodiversity hotspot. *Frontiers in Zoology*, 11, 1–10.
- Binh Van, N. & Chung Dac, N. (2011) Morphological characters, sexual ratio, testis and egg development of *Quasipaa verrucospinosa* (Bourret, 1937) (Amphibia: Anura: Dicroglossidae) from Thua Thien-Hue Province, Central Vietnam. *Russian Journal of Herpetology*, 18, 157–164.
- Borthakur, R., Kalita, J., Hussain, B. & Sengupta, S. (2007) Study on the *Fejervarya* (Anura : Dicroglossidae) species of Assam. *Zoo's Print Journal*, 22, 2639–2643.
- Chan-ard, T., Cota, M. & Mekchai, S. (2011) *The amphibians of the Eastern Region, with a checklist of Thailand*. National Science Museum, Pathum Thani, Thailand, 1–160.
- Chan-ard, T., Makchai, S. & Rassamee, Y. (2011) Additional localities of *Limnonectes kohchangae* (Smith, 1922) (Anura, Dicroglossidae) in Thailand. *Thailand natural History Museum Journal*, 5, 83–87.
- Che, J., Hu, J.-S., Zhou, W.-W., Murphy, R.W., Papenfuss, T.J., Chen, M.-Y., Rao, D.-Q., Li, P.-P. & Zhang, Y.-P. (2009) Phylogeny of the Asian spiny frog tribe Paini (Family Dicroglossidae) sensu Dubois. *Molecular Phylogenetics & Evolution*, 50, 59–73.
- Chen, G., Wang, B., Liu, J., Xie, F. & Jiang, J. (2011) Complete mitochondrial genome of *Nanorana pleskei* (Amphibia: Anura: Dicroglossidae) and evolutionary characteristics. *Current Zoology*, 57, 785–805.
- Chuaynkern, Y., Duengkae, P., Sribandit, P., Bunchornratana, K., Chuaynkern, C., Khewwan, N. & Tipayanukul, S. (2011) Amphibia, Anura, Dicroglossidae, *Quasipaa fasciculispina* (Inger, 1970): distribution extension. *Check List*, 7, 114–116.
- Das, I. (2010) *Rana ulukalensis* Nakatani, 1969, a junior synonym of *Rana tweediei* Smith, 1935 (Amphibia: Anura: Dicroglossidae). *Current Herpetology*, 29, 33–35.
- Devi, N.N. & Gupta, A. (2013) Toxicity of endosulfan to tadpoles of *Fejervarya* spp. (Anura: Dicroglossidae): mortality and morphological deformities. *Ecotoxicology*, 22, 1395–1402.
- Djong, H.T., Matsui, M., Kuramoto, M., Nishioka, M. & Sumida, M. (2011) A new species of the *Fejervarya limnocharis* complex from Japan (Anura, Dicroglossidae). *Zoological Science*, 28, 922–929.
- Eto, K. & Matsui, M. (2012) Field observation of egg-laying behavior of a puddle frog *Occidozyga sumatrana* from Bali, Indonesia (Anura: Dicroglossidae). *Current Herpetology*, 31, 121–124.
- Fabricante, K.M.B. & Nuneza, O.M. (2012) Diet and endoparasites of *Rana grandocula* (Amphibia, Ranidae) and *Limnonectes magnus* (Amphibia, Dicroglossidae) in Mt. Sambilikan, Diwata Range, Agusan del Sur, Philippines. *AES Bioflux*, 4, 113–121.
- Fei, L., Ye, C.-Y. & Jiang, J.-P. (2010) Phylogenetic systematics of Ranidae. *Herpetologica sinica*, 12, 1–43.
- Fei, L., Ye, C. & Jiang, J. (2012) *Colored atlas of Chinese amphibians and their distributions*. Sichuan, Sichuan Publishing House of Science & Technology, 1–620.
- Frost, D.R., Grant, T., Faivovich, J., Bain, R.H., Haas, A., Haddad, C.F.B., De Sa, R.O., Channing, A., Wilkinson, M., Donnellan, S.C., Raxworthy, C.J., Campbell, J.A., Blotto, B.L., Moler, P., Drewes, R.C., Nussbaum, R.A., Lynch, J.D., Green, D.M. & Wheeler, W.C. (2006) The amphibian tree of life. *Bulletin of the American Museum of natural History*, 297, 1–370.
- Hasan, M., Kuramoto, M., Islam, M.M., Alam, M.S., Khan, M.M.R. & Sumida, M. (2012) A new species of genus *Hoplobatrachus* (Anura, Dicroglossidae) from the coastal belt of Bangladesh. *Zootaxa*, 3544, 45–48.
- Howlader, M.S.A. (2011) A new species of *Fejervarya* (Anura: Dicroglossidae) from Bangladesh. *Zootaxa*, 2761, 41–50.
- Iskandar, D.T., Arifin, U. & Rachmansah, A. (2011) A new frog (Anura, Dicroglossidae), related to *Occidozyga semipalmata* Smith, 1927, from the Eastern Peninsula of Sulawesi, Indonesia. *Raffles Bulletin of Zoology*, 59, 219–228.
- Iskandar, D.T., Bickford, D.P. & Arifin, U. (2011) A new *Ingerana* (Anura, Dicroglossidae) with no external tympanum from Borneo, Indonesia. *Raffles Bulletin of Zoology*, 59, 213–218.
- Kotaki, M., Kurabayashi, A., Matsui, M., Kuramoto, M., Djong, T.H. & Sumida, M. (2010) Molecular phylogeny of the diversified frogs of genus *Fejervarya* (Anura: Dicroglossidae). *Zoological Science*, 27, 386–395.
- Matsui, M., Dubois, A. & Ohler, A. (2013) New replacement name for *Rana paradoxa* Mocquard, 1890 with designations of lectotypes for *Rana paradoxa* and *Rana conspicillata* Günther, 1872: both synonymized with *Limnonectes kuhlii* (Tschudi, 1838) (Dicroglossidae: Dicroglossinae). *Asian herpetological Research*, 4, 187–189.

- Matsui, M., Kuraishi, N., Jiang, J.-P., Ota, H., Hamidy, A., Orlov, N.L. & Nishikawa, K. (2010) Systematic reassessments of fanged frogs from China and adjacent regions (Anura: Dicroglossidae). *Zootaxa*, 2345, 33–42.
- Matsui, M., Panha, S., Khonsue, W. & Kuraishi, N. (2010) Two new species of the *kuhlii* complex of the genus *Limnonectes* from Thailand (Anura: Dicroglossidae). *Zootaxa*, 2615, 1–22.
- McLeod, D.S. (2010) Of least concern? Systematics of a cryptic species complex: *Limnonectes kuhlii* (Amphibia: Anura: Dicroglossidae). *Molecular Phylogenetics & Evolution*, 56, 991–1000.
- McLeod, D.S., Horner, S.J., Husted, C., Barley, A. & Iskandar, D. (2011) “Same-same, but different”: an unusual new species of the *Limnonectes kuhlii* complex from West Sumatra (Anura: Dicroglossidae). *Zootaxa*, 2883, 52–64.
- McLeod, D.S., Kelly, J.K. & Barley, A. (2012) “Same-same but different”: another new species of the *Limnonectes kuhlii* complex from Thailand (Anura: Dicroglossidae). *Russian Journal of Herpetology*, 19, 261–274.
- Ohler, A. & Deuti, K. (2013) *Pyxicephalus khasianus* Anderson, 1871 and *Rana laticeps* Boulenger, 1882 (Dicroglossidae, Anura, Amphibia) are synonyms. *Zoosystema*, 35, 415–424.
- Pansook, A., Khonsue, W., Piyapattanakorn, S. & Pariyanonth, P. (2012) Phylogenetic relationships among *Hoplobatrachus rugulosus* in Thailand as inferred from mitochondrial DNA sequences of the cytochrome-b gene (Amphibia, Anura, Dicroglossidae). *Zoological Science*, 29, 54–59.
- Pisanets, E.M. & Pisanets, A.M. (2007) The preliminary data of *Nanorana parkeri* variability from Tibet, China (Amphibia, Dicroglossidae). *Zbirnyk Prats Zoologichnoho Muzeya - Kyiv*, 39, 57–62.
- Purkayastha, J. & Matsui, M. (2012) A new species of *Fejervarya* (Anura: Dicroglossidae) from Mawphlang, northeastern India. *Asian herpetological Research*, 3, 31–37.
- Qing, L., Xia, Y., Zheng, Y. & Zeng, X. (2012) A de novo case of floating chromosomal polymorphisms by translocation in *Quasipaa boulengeri* (Anura, Dicroglossidae). *Plos One*, 7(10), 1–16.
- Rizvi, A.N., Bursey, C.R. & Bhutia, P.T. (2012) Three new species of Digenea (Batrachotrematidae) in Anura (Dicroglossidae) from Uttarakhand, India. *Acta parasitologica*, 57, 154–159.
- Rowley, J.J.L. & Altig, R. (2012) Nidicolous development in *Limnonectes limborgi* (Anura, Dicroglossidae). *Amphibia-Reptilia*, 33, 145–149.
- Shan, X., Xia, Y., Zheng, Y.-C., Zou, F.-D. & Zeng, X.-M. (2014) The complete mitochondrial genome of *Quasipaa boulengeri* (Anura: Dicroglossidae). *Mitochondrial DNA*, 25, 83–84.
- Siler, C.D., McVay, J.D., Diesmos, A.C. & Brown, R.M. (2009) A new species of fanged frog, genus *Limnonectes* (Amphibia: Anura: Dicroglossidae) from southeast Mindanao Island, Philippines. *Herpetologica*, 65, 105–114.
- Suwannapoom, C., Wongkham, W., Sitasuwan, N. & Chomdej, S. (2012) Phylogenetic relationship of *Limnonectes* (Anura: Dicroglossidae) in Thailand. *Current Research Journal of biological Sciences*, 4, 306–309.
- Vasudevan, K. & Sondhi, S. (2010) *Amphibians and reptiles of Uttarakhand, India*. Wildlife Institute of India, Dehradun, i–xiv + 1–94.
- Vitt, L.J. & Caldwell, J.P. (2014) *Herpetology. An introductory biology of amphibians and reptiles*. Elsevier, Amsterdam, etc., i–xiv + 1–757.
- Wickramasinghe, D.D., Oseen, K.L. & Wassersug, R.J. (2007) Ontogenetic changes in diet and intestinal morphology in semi-terrestrial tadpoles of *Nannophrys ceylonensis* (Dicroglossidae). *Copeia*, 2007, 1012–1018.
- Xia, Y., Hu, L., Shan, X., Zheng, Y. & Zeng, X. (2013) Isolation and characterization of eleven polymorphic tetranucleotide microsatellite loci for *Quasipaa boulengeri* (Anura: Dicroglossidae). *Conservation Genetics Resources*, 5, 5–7.
- Yan, F., Zhou, W., Zhao, H., Yuan, Z., Wang, Y., Jiang, K., Jin, J., Murphy, R.W., Che, J. & Zhang, Y. (2013) Geological events play a larger role than Pleistocene climatic fluctuations in driving the genetic structure of *Quasipaa boulengeri* (Anura: Dicroglossidae). *Molecular Ecology*, 22, 1120–1133.
- Yang, X., Wang, B., Hu, J. & Jiang, J. (2011) A new species of the genus *Feirana* (Amphibia: Anura: Dicroglossidae) from the western Qinling Mountains of China. *Asian herpetological Research*, 2, 72–86.
- Ye, S., Huang, H., Zheng, R., Zhang, J., Yang, G. & Xu, S. (2013) Phylogeographic analyses strongly suggest cryptic speciation in the giant spiny frog (Dicroglossidae: *Paa spinosa*) and interspecies hybridization in *Paa*. *Plos One*, 8(7), 1–9.
- Yu, D., Zhang, J., Zheng, R. & Shao, C. (2012) The complete mitochondrial genome of *Hoplobatrachus rugulosus* (Anura: Dicroglossidae). *Mitochondrial DNA*, 23, 336–337.
- Zhang, D.-R., Chen, M.-Y., Murphy, R.W., Che, J., Pang, J.-F., Hu, J.-S., Luo, J., Wu, S.-J., Ye, H. & Zhang, Y.-P. (2010) Genealogy and palaeodrainage basins in Yunnan Province: phylogeography of the Yunnan spiny frog, *Nanorana yunnanensis* (Dicroglossidae). *Molecular Ecology*, 19, 3406–3420.