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Haemaphysalis qinghaiensis (Acari: Ixodidae), a correct original species name, with notes on Chinese geographical and personal names in zoological taxa

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Abstract. The correct original species name *Haemaphysalis qinghaiensis* Teng, 1980 was derived from Latinization of a geographical name, in conformity with the International Code of Zoological Nomenclature (ICZN) (1961), Articles 11 and 32, and Appendices C and D (ICZN 3rd ed., 1985), as well as Article 11, Recommendation 11A (ICZN 4th ed., 1999). The incorrect subsequent spelling "*quinghaiensis*" is not an available name and cannot be used as a substitute name (ICZN 3rd ed., Article 34c, and 4th ed., Article 33.3). The geographical name "Qinghai" means blue lake, a large lake of northwestern China from which Qinghai Province derives its name. It is therefore not surprising that naturalists exploring Qinghai Province have applied the specific epithet *qinghaiensis* to their discoveries. Currently, over 160 species of plants, animals, and even bacteria bear the name *qinghaiensis.* Romanization of Chinese words was approved by the Chinese government in 1958 and subsequently registered with the International Organization for Standardization (ISO), which has consultative status with the United Nations under ISO-7098.1977, revised as ISO-7098.1991.

Key words: *Haemaphysalis qinghaiensis*, correct original spelling, ICZN, ISO, unjustified emendation, Romanization of Chinese words, geographical and personal names

The tick species *Haemaphysalis qinghaiensis* Teng, 1980 was discovered in Qinghai Province and the species name is thus derived from a Chinese geographical name. "Qinghai" means blue lake—"qing" (blue) and "hai" (lake)—a large lake in northwestern China. Qinghai Province is situated east of Xinjiang Uygur Autonomous Region and north of Xizang Autonomous Region (Tibet). Since its description, *H. qinghaiensis* has been recorded from many other jurisdictions in China, including Gansu, Sichuan and Yunnan Provinces, and Ningxia and Xizang Autonomous Regions, and the species epithet *qinghaiensis* has been widely cited in both the Chinese tick literature (Teng & Jiang 1991; Yang *et al.* 2008; Chen *et al.* 2010; Chen *et al*. 2014) and western publications (Keirans & Robbins 1999; Horak *et al*. 2002; Robbins & Robbins 2003; Barker & Murrell 2004). However, a number of Western tick taxonomists seem to have been unaware that the name *qinghaiensis* is based on Romanization of a Chinese geographical name, and they therefore held that *qinghaiensis* was not in conformity with Latin grammar. As a result, they corrected *qinghaiensis* to "*quinghaiensis*" (Camicas *et al.* 1998), an emendation that was subsequently followed by others (Guglielmone *et al*. 2009, 2010, 2014).

The Latin spelling "Qinghai" was approved by the Chinese Government in 1958. In 1977, Romanization of Chinese geographical names was officially adopted at the Third United Nations Conference on the Standardization of Geographical Names under International Organization for Standardization (ISO) 7098.1977, revised in 1982 and again in 1991 to explain the principles of Romanization of modern Chinese, the official language of the People's Republic of China (Feng, 2013).

To date more than 160 organisms bear species names derived from Qinghai, including mites (*e.g*., *Amblyseius qinghaiensis* Wang & Xu, 1991 and *Bryobia qinghaiensis* Ma & Yuan, 1991), fleas (*Amphipsylla qinghaiensis* Ren & Ji, 1979 and *Frontopsylla nakagawai qinghaiensis* Liu, Cai & Pan,

1986), dipterans (*Culicoides qinghaiensis* Fei & Lee, 1984 and *Hypoderma qinghaiensis* Fan, 1982), nematodes (*Trichostrongylus qinghaiensis* Liang, Lu & Han, 1987 and *Varestrongylus qinghaiensis* Liu, 1984) and a rodent (*Apodemus peninsulae qinghaiensis* Feng, Zheng & Wu, 1983), as well as weeds (*Artemisia dracunculus* var. *qinghaiensis* Ling, 1988 and *Asparagus qinghaiensis* Wan, 1991) and bacteria (S*inococcus qinghaiensis* Li, Zhang, Schumann, Tian, Zhang, Xu & Jiang, 2006). Even a genus name for a group of mites, *Qinghailaelaps* Gu & Yang, 1984, is derived from the Romanized geographical name for Qinghai Province.

According to the International Code of Zoological Nomenclature (ICZN) (1961) and ICZN 3rd Ed. (1985), Article 11 (b) (iii), "A name may be formed from a language that uses a non-Latin alphabet, or to represent a natural sound, or as an arbitrary combination of letters, if it is written in Latin letters and so constructed that it can be used as a word and deemed to be Latin (see Appendix C)." In Appendix C-15, Latinization of geographical and proper names, the writers read: "The letter *q* may be used to represent the Arabic *qaf*. The combination of *qu* should be used to represent the sound that is expressed in the English word *quote* and the French word *quoi*." And in Appendix D. IV-22: "A species-group name based on geographical names should be…preferably an adjective derived from the geographical name." The same thinking appears in ICZN 4th Ed. (1999), where, under Recommendation 11A, "Use of vernacular names," the writers find: "An unmodified vernacular word should not be used as a scientific name. Appropriate Latinization is the preferred means of formation of names from vernacular words." Thus, the species name *H. qinghaiensis* is correct in its original spelling and should be preserved unaltered (ICZN 4th ed., 1999, Article 32.2). Camicas *et al*. (1998) erred in correcting the original spelling and substituting the incorrect spelling "*quinghaiensis*," which represents neither a natural Chinese sound nor a Chinese geographic name.

According to the ICZN 3rd ed., 1985, Article 34(c), and 4th ed., 1999, Article 33.3, "Any subsequent spelling of a name different from the correct original spelling, other than a mandatory change or an emendation, is an 'incorrect subsequent spelling'; it is not an available name and does not enter into homonymy and cannot be used as a substitute name."

Therefore, *qinghaiensis* is the correct spelling in all cases where zoological or botanical taxa bear this epithet, since it is derived from a geographical name and a natural sound. The citation for *H. qinghaiensis* should appear as follows:

***Haemaphysalis qinghaiensis* Teng, 1980**

Haemaphysalis qinghaiensis, Teng, 1980. *Acta Zootax Sin* 5: 144; Teng & Jiang, 1991. Acari: Ixodidae. *Economic Insect Fauna of China*. F39: 158; Keirans & Robbins, 1999. *J Vect Ecol* 24: 123; Horak *et al*., 2002. *Exp Appl Acarol* 28: 47; Robbins & Robbins, 2003. *Syst Appl Acarol Spec Publ* 17:10; Barker & Murrell, 2004. *Parasitology*, 129: S29; Yang *et al*., 2008. *J Hebei Norm Univ (Nat Sci)* 4: 531; Chen *et al*., 2010, *Exp Appl Acarol* 51: 400; Chen *et al*., 2014, *Parasit Res* 113: 2095.

Haemaphysalis quinghaiensis, Camicas *et al*., 1998. *Les tiques du monde*. p. 131; Guglielmone *et al*., 2009. *Exp Appl Acarol* 48: 332; Guglielmone *et al*., 2010, *Zootaxa* 2528: 15; Guglielmone *et al*., 2014: 337–338 (unjustified emendation).

China occupies about 1/15 of the world's land area and is divided between the Palaearctic and Oriental Zoogeographic Regions. It is estimated that about 13% of the world's animal species occur in China, and the scientific names of a great many of these species have been derived from Chinese geographical or personal names. There are some profound phonetic differences between Romanized Chinese words and their Latin equivalents, such as c (ts), ch (tsr), e (ou), q (ch), sh (sr), x (shi), z (ds) and zh (dsr), but they are very common, and the use of these Roman characters in taxa derived from geographical and personal names is correct according to the ICZN. For example, *Zhangia* Wen, 2002 is a subgenus based on the surname of Dr. Zhi-Qiang Zhang (the Latin equivalent would be "Tse-Chang Chang"), Professor of Zoology and Acarology and founder and Editor-in-Chief of the journals *Systematic and Applied Acarology* and *Zootaxa*. The genus name *Xinjiangsha* Wen & Shao, 1984 is derived from a geographical jurisdiction, the Xinjiang Uygur Autonomous Region. And the species *Multisetosa xizangensis* Wu & Wen, 1984 is named for the Xizang (Tibet) Autonomous Region, another geographical area. Perhaps the best example of this process is the laelapid mite *Qinghailaelaps qinghaiensis* Li, Yang & Wang, 1998, where both the genus and species names are derived from Qinghai Province.

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