

**Case 3638*****Saturnia canningi* Hutton, 1859 (currently *Samia canningi*; Insecta, Lepidoptera, SATURNIIDAE): proposed conservation**

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**Abstract.** The purpose of this application, under Article 81 of the Code, is to conserve the name *Saturnia canningi* Hutton, 1859, the progenitor of *Samia ricini* (Jones, 1791). The eri silk moth (*Samia ricini*) is the third largest source of silk in world commerce. The Himalayan *Samia canningi* has been demonstrated to be the wild progenitor of *S. ricini*, which exists only in captivity. Therefore, the two names refer to the same biological species, but the name *Phalaena ricini* Jones, 1791 has precedence over *Saturnia canningi* Hutton, 1859. However, both names have been used widely and consistently by authors in the entomological and sericultural literature for over 150 years to refer to the domesticated and wild entities, respectively. The authors propose that the name *Saturnia canningi* be conserved and added to the Official List of Specific Names in Zoology, so that it can continue to be used when referring to the wild form.

**Keywords.** Nomenclature; taxonomy; *Samia*; *Samia canningi*; *Samia ricini*; eri silk; eri silkmoth; India; wild silk

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1. SATURNIIDAE are among the most popularly studied and collected of the lepidopterans. There is a saturniid moth historically and currently known as *Samia canningi* that ranges in the sub-Himalayan region, from Pakistan down through Nepal, Bhutan, northeastern India, Burma, Thailand, Cambodia, Laos, and northern Vietnam (Allen, 1993; Arora & Gupta; 1979; Seitz, 1926a, b; Zhu & Wang, 1996). There are also records from southern Yunnan and eastern Xizang (Tibet) in China. *Samia* Hübner, 1819 was revised by Peigler & Naumann (2003), who considered the genus to contain 19 species. Two of those species were given as *Samia ricini*, the well-known eri silk moth which exists only in captivity, and *S. canningi*. Peigler & Naumann presented a compelling case that *S. ricini* was derived from *S. canningi* by sericultural selection. They considered that for stability of nomenclature in the entomological and sericultural literature, the wild and domestic entities should carry separate names and be treated as separate species, citing the example of the wolf and the dog as analogous. Opinion 2027, also published in 2003, provides several additional cases of domestic animals being named prior to their wild progenitors, and



the example of *Bombyx mandarina* and *Bombyx mori* exactly parallels the present case of *Samia canningi* and *S. ricini*.

2. Peigler & Naumann (2003) determined that the name *canningi* was first established by Hutton (1859, p. 28) but were unable to track the original description of the name *ricini* prior to the use of that name by Donovan (1798), so they reluctantly cited the authorship of *ricini* as 'Anonymous' citing Articles 14 and 50.1 of the Code (1999). The recent study by Peigler & Calhoun (2013) resolved the original description and generic combination as *Phalaena ricini*, establishing that the name should be attributed to Sir William Jones (in Anderson, 1791, p. 43). However, an anonymous reviewer of that paper pointed out that *canningi* must be considered a junior synonym of *ricini*, since the two entities are biologically the same species. Although Opinion 2027 (BZN 60(1): 74–75, March 2003) could be cited in support of treating *S. canningi* and *S. ricini* as separate species, thereby conserving the junior synonym *canningi*, the Commission did issue a specific ruling on this particular example.

3. The name *Samia canningi* has been used to designate the wild form by many authors since the 1860s and all through the 20th century, as shown in the exhaustive synonymy of the taxon given by Peigler & Naumann (2003, pp. 112–113) (i.e. Simmonds, 1869; Wardle, 1879; Cotes & Swinhoe, 1887; Horsfield & Moore, 1858–1859; Schüssler, 1933; Bouvier, 1936; Gardiner, 1982; Pinratana & Lampe, 1990; Allen, 1993; Zhu & Wang, 1996; Mohanraj et al., 1998). Prior to 1860, *S. canningi* was also separated from the cultivated *S. ricini* and identified as *Samia cynthia* (Drury, 1773), although the true *S. cynthia*, the type-species of *Samia* Hübner, 1819 and its main synonym *Philosamia* Grote, 1874, is native only in northeastern China and Korea.

4. The name *canningi* is still used freely and by most authors when citing the wild form (Singh & Suryanarayana, 2005; Clary, 2009; Kakati & Chutia, 2009; Lampe, 2010; Meister, 2011; Devi et al., 2011; Peigler, 2012; Luikham, 2012; Badola & Peigler, 2013). However, the current situation is that it is technically incorrect to use that junior subjective synonym, since the two entities are known to be the same species biologically, and the recent publication of Peigler & Calhoun (2013) pointed out the synonymy. The Code does not provide any articles to conserve junior subjective synonyms when it is demonstrated that they pertain to a wild progenitor or domesticated form that was named earlier, even when the two can be easily distinguished from each other, which is the case here.

5. The adult moths of *Samia canningi* and *Samia ricini* are easy to distinguish from each other. Moths of *S. canningi* have individual white tufts on the dorsal surface of the abdomen, like most other species in the genus, and they fly. Moths of *S. ricini* have solid white abdomens, and they do not fly. The slender, compact cocoons of *S. canningi* are grey or brownish, with well developed peduncles by which they remain attached to the hostplants. The larger and puffy cocoons of *S. ricini* are snow white or brick red, and lack peduncles (Kavane & Sathe, 2011). *Samia ricini* exists only in captivity, like *Bombyx mori*, and the eri silkworms are usually reared indoors. Each of these well-defined and easily observed differences in cocoons and moths reliably ensures that specimens of the two entities are not confused with one another.

6. There are no extant type specimens of *Samia ricini* or *Samia canningi*, but Peigler & Naumann (2003) did not believe there was a need to designate neotypes because the



two names have been clearly and consistently applied to the domesticated and wild forms, respectively, for more than a century.

7. Annually more than 96% of all eri silk is produced in Northeast India, primarily Assam, Meghalaya and Manipur, but small amounts come also from other states throughout India (Central Silk Board, 2006; Sharma et al., 2010). Eri silk is also cultured in Japan (Mitamura, 2013), Thailand, Vietnam, China, and other southeast Asian countries. It has been successfully produced in Ethiopia since 2001, where it serves as an agent of fair trade and poverty alleviation. The Assamese and Bengali name 'eri' has become the international standard name for this type of silk, used by the Central Silk Board, although English authors and speakers sometimes call it 'endi,' which is its name in Hindi and Oriya. Whilst it has traditionally been used in ethnic clothing (chaddars, salwar kameez, scarves, etc.) and bedcovers in Northeast India, eri silk is becoming increasingly used for cushion covers, shawls, and other items that target the market of the emerging middle class of India (Badola & Peigler, 2013). After mulberry silk (*Bombyx mori*) and China's tussah silk (*Antheraea pernyi*), eri silk ranks third in world production (Srivastav & Thangavelu, 2005).

8. The implications of maintaining the current situation would not affect the sericultural literature very much, mostly published by workers in India, except when those writers occasionally refer to the wild form. The proposed solution would be for the Commission to issue a ruling conserving the name *Saturnia canningi* Hutton, 1859, so that this name could be legally applied to the wild form, as is currently being done and has been for more than a century. The alternative solution would require authors to use the name *ricini* for the wild form that is frequently cited in taxonomic publications and regional surveys, which would lead to new confusion and inconsistent usage, because some authors would comply and others would not.

9. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that the name *canningi* Hutton, 1859, as published in the binomen *Saturnia canningi*, is not invalid by reason of being pre-dated by a name based on a domestic form;
- (2) to place on the Official List of Specific Names in Zoology the following names:
  - (a) *canningi* Hutton, 1859, as published in the binomen *Saturnia canningi*, with the endorsement that it is not invalid by reason of being pre-dated by a name based on a domestic form;
  - (b) *ricini* Jones in Anderson, 1791, as published in the binomen *Phalaena ricini*.

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