



Short communication

Questionable status of the “Taynguyen civet”, *Viverra tainguensis* Sokolov, Rozhnov and Pham Trong Anh, 1997 (Mammalia: Carnivora: Viverridae)

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CORBET and HILL (1992) recognized four species of *Viverra* Linnaeus in the Indomalayan Region. Two of these are known from Vietnam: the large Indian civet, *V. zibetha*, and the large-spotted civet, *V. megaspila* (OSGOOD 1932; DANG HUY HUYNH et al. 1994). In 1997, SOKOLOV et al. described the “Taynguyen civet”, *Viverra tainguensis*, from Vietnam. The description was based on characters of the holotype only, a subadult male. A paratype was designated but its characters were not used in the description. The authors state that they had examined 46 *V. zibetha* from Vietnam, four *V. zibetha* from China, two *V. megaspila* from Vietnam, and eight *V. tangalunga* from Indonesia and the Philippines. In 1999, ROZHNOV and PHAM TRONG ANH assigned an additional five specimens to *V. tainguensis* and later contributed to another publication detailing additional morphometric parameters of two of the specimens (SOKOLOV et al. 1999). Although the present authors have not examined the holotype, which remains at the Zoological Museum of the Moscow State University (ZMMU), the original description of *V. tainguensis* and both subsequent publications contain a number of factual errors and questionable interpretations that cast doubt on the validity of the supposed

new species. However, since V. E. SOKOLOV died in early 1998, it is not clear to what extent he was involved in the latter publication authored by SOKOLOV et al. (1999).

POCOCK (1939) recognised, as full genera, *Viverra*, *Viverricula* and *Moschothera*. *Viverra megaspila* and *V. civettina* were placed in *Moschothera*, which was distinguished from *Viverra*, in the sense of Pocock, by the absence of sheaths of skin covering the claws of the 3rd and 4th digits of the forefeet. This feature was clearly described and well-figured by POCOCK. CORBET and HILL (1992) placed *Moschothera* as a synonym of *Viverra*, but regarded the claw sheathing as an important diagnostic character for distinguishing *V. zibetha* and *V. tangalunga* from their congeners. Although the claw sheathing is present in *V. tangalunga*, this species is restricted to the Sundaic subregion and is not known from the Indochinese subregion.

In CORBET and HILL's (1992) table 138, the presence or absence of sheathing in each species of *Viverra* is indicated by a “+” or “o”, respectively, for all species except for *V. tangalunga*. However, as confirmed by CORBET (pers. comm.), a typographical error has resulted in the symbols being reversed. The absence of supporting text or

illustrations prevents this error from being easily detected. The remainder of the table agrees with Pocock's (1939) findings.

The most consequential error in the description of *V. tainguensis* by SOKOLOV et al. (1997) relates to the confusion over the sheathing of the front claws. Repeating the error of CORBET and HILL (1992), SOKOLOV et al. (1997) affirmed the presence of sheathing in *V. megaspila*, and its absence in *V. zibetha*, exactly the reverse of the situation found in nature. This error is made repeatedly; the incorrect, reversed, character are said to have been observed in specimens examined; and they are used as the first and most important diagnostic features distinguishing their *V. tainguensis* from *V. zibetha*. In order to check the status of the sheathing on *V. zibetha*, specimens from the Natural History Museum, London (BMNH), were examined. In addition, the 28 specimens at the Institute of Ecology and Biological Resources (IEBR), Hanoi, said to have been examined by SOKOLOV et al. (1997), in the course of their description of *V. tainguensis*, were re-examined (R. J. TIMMINS, pers. comm.). All specimens conformed to the situation as described by Pocock (1939), rather than that as given by SOKOLOV et al. (1997), with respect to the sheathing. Perhaps the characters as given in table 138 by CORBET and HILL (1992) were simply accepted by SOKOLOV et al. (1997), earlier publications were not read carefully, and actual characters of specimens of *V. zibetha* were not ascertained but were merely assumed to be as given by CORBET and HILL (1992). In any event, if the animals ascribed to *V. tainguensis* have sheathed claws, then this trait would be shared between them and specimens properly identified as *V. zibetha*, rather than being one to suggest a specific distinction between the two.

The second supposedly distinguishing feature given by SOKOLOV et al. (1997) for *V. tainguensis* was body size, which was said to be less than that in *V. zibetha*. However, the holotype of *V. tainguensis* is subadult with a head-body length of 600 mm (SOKO-

LOV et al. 1997) and head-body lengths (of 790 and 780 mm) have been provided for only two additional specimens, both adults (ROZHN OV and PHAM TRONG ANH 1999). These measurements are well within the known range of 740–860 mm for *V. zibetha* (CORBET and HILL 1992). Although Pocock (1939) was cited by SOKOLOV et al. (1997), they made no mention of adult specimens of *V. zibetha* that Pocock examined from northeastern India, Nepal, and Myanmar, and which had head-body lengths of 742–863 mm. In addition, THOMAS (1927) described a subspecies of *V. zibetha* (*V. z. surdaster*) from northern Laos and central and southern-central Vietnam; the last locality being less than 50 km from the type locality of *V. tainguensis*. SOKOLOV et al. (1997) and ROZHN OV and PHAM TRONG ANH (1999) did not mention THOMAS'S *V. z. surdaster*, although it was listed by CORBET and HILL (1992). THOMAS (1927) described *V. z. surdaster* as "averaging rather smaller than true Indian *zibetha*", and noted further that "among the variable races of the... Indian, civet the form may be distinguished by its comparatively small size and especially by its small bullae". The condylobasal length of the only existing adult skull of *V. tainguensis* is 132.5 mm (SOKOLOV et al. 1999), whilst that of the type of *V. z. surdaster* measures 128 mm, and specimens measured by Pocock (1939) range from 129–135 mm for *V. z. pruinosa*. The specimens that THOMAS assigned to *V. z. surdaster* are clearly important in assessing the validity of *V. tainguensis* and it appears that *tainguensis* cannot be distinguished from *surdaster* based on measurements. Certainly the body and skull sizes given for *V. tainguensis* fall within the range of those known for *V. zibetha*, and in no way argue for the specific distinctness of the former.

The supposed third distinguishing feature of *V. tainguensis* given by SOKOLOV et al. (1997) was relative tail length. The tails of the seven specimens of *V. tainguensis*, were reported to average 52% of the head-body length, proportionately smaller than the 55–60% given for *V. zibetha*. However, the mean tail to head-body length of the adult

V. zibetha examined by Pocock (1939) was 53.5%, hardly different from that given for the *V. tainguensis*. The supposed difference becomes even less significant when one considers that the holotype of *V. tainguensis* is a subadult, that measurements of the adult paratype are not included in the description, and the only two specimens of *V. tainguensis* with accompanying morphometric data had tail to head-body length ratios of 53% and 56% (ROZHN OV and PHAM TRONG ANH 1999). Furthermore, neither publication dealing with *V. tainguensis* gave relative tail lengths for any *V. zibetha* specimens examined. Both merely quoted the figure from CORBET and HILL, (1992). Clearly, no convincing evidence has been presented to show that relative tail length can be used to distinguish *V. zibetha* from a second species to be known as *V. tainguensis*. (It should also be noted that SOKOLOV et al. (1997) stated that *V. megaspila* has a tail 45–55% of the length of its head-body. They appear to mean '*V. tangalunga*', which, according to CORBET and HILL (1992), does have a tail 45–55% of its head-body length, whereas in *V. megaspila* it is 30–50%.)

A fourth supposed distinguishing feature of *V. tainguensis* was stated to involve the pelage colour pattern. SOKOLOV et al. (1997) cited CORBET and HILL (1992) as stating that *V. tangalunga*, *V. zibetha*, and *V. megaspila* show little variation in their pelage pattern. Later, ROZHN OV and PHAM TRONG ANH (1999) cited the same source to support their contention that "Weak variation in external morphology is typical for all species of genus *Viverra*". These claims are incorrect. The first claim holds for *V. tangalunga*, but not for *V. megaspila* and it also involves a misinterpretation of a statement concerning *V. zibetha*. CORBET and HILL (1992) mentioned "little regional variation" in *V. zibetha*. This clearly refers to inter-regional, rather than intra-regional, variation. There is clearly a considerable degree of variation, both in pelage colouration and other characteristics in *V. zibetha*. The description of *V. z. surdaster* states "colour, as usual, variable, but with less tendency

to definite markings on the flanks and hips" (THOMAS 1927). OSGOOD (1932) stated that the species is "variable" and that "doubtless there are several recognizable races." Pocock (1939), wrote "In *V. zibetha*... the coat, colour, and pattern vary considerably... The body-pattern is strongly pronounced in summer, indistinct or even obliterated in winter; and the ground-colour varies individually, even irrespective of season, from tawny to clear, almost silvery-grey... The differences ... in colour and pattern, now known to be individual and... seasonal, account for the number of names applied to most of the local races of this civet." Examination of existing specimens from south-east Asia clearly reveals the variability of the pelage pattern of *V. zibetha*. Specifically, SOKOLOV et al. (1997) considered there to be three distinctive pelage features of *V. tainguensis*: the "semi-lunar" spots, the colour pattern of the fore and hind legs, and the light brown stripe running parallel to the crest. All three of these features are present separately in *V. zibetha* specimens at the Muséum National d'Histoire Naturelle (MNHN). The "semi-lunar" spots can be observed in combination with both, one or none of the other pelage characteristics claimed for *V. tainguensis* in specimens from Vietnam, and is also a characteristic of a *V. zibetha* specimen from China (CG 1962-156 at the MNHN). Another specimen from China (CG 1902-688) displays the colour pattern on its legs but lacks the distinctive spots and lateral stripes, whilst a specimen from Vietnam (CG 1929-390, paratype of *V. z. surdaster*) has highly distinctive lateral stripes but lacks the colour pattern of the legs and any spots. Semi-lunar spots can also be observed on *V. zibetha* specimens of the BMNH from across the geographic range of the species. The pelage features stated to distinguish *V. tainguensis* will not separate this nominal form from all known individuals of *V. zibetha*.

In view of all of the above, insufficient evidence has been presented to suggest that *V. tainguensis* is in any way a distinct spe-

cies. However, a proposal to synonymise *V. tainguensis* with *V. zibetha* would be premature without an examination of the holotype. Thus, we propose that all records of *V. tainguensis*, except possibly that of the holotype, be withdrawn and that a re-examination of the holotype be undertaken.

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