

First record of male combat in *Oligodon fasciolatus*

HARRY WARD-SMITH^{1*}, ROSE STROUP¹ & BARTOSZ NADOLSKI²

¹Sakaerat Conservation and Snake Education Team, Nakhon Ratchasima, Thailand

²Suranaree University of Technology, Nakhon Ratchasima, Thailand

*Corresponding author e-mail: harry_ws@hotmail.co.uk

The banded kukri snake (*Oligodon fasciolatus*) is a primarily nocturnal, terrestrial species that reaches a maximum length of 920 mm in males and 863 mm in females. It is typically grey in colour but may vary from red to brown. Encountered throughout mainland south-east Asia, this species is a habitat generalist being found in agricultural landscapes and tropical forests up to 900 m asl (Cox et al., 2012). *Oligodon* species possess enlarged posterior maxillary teeth that evolved to slice through a specialised diet of frogs and reptile eggs. This dentition results in bites that are characterised by deep, clean, bloody wounds.

Herein we present only the second report of combat between males in the genus *Oligodon*; with a historic report in *Oligodon taeniatus* recently being uncovered (Gray, 2021). During a herpetofaunal survey on the 26th December 2018 in Sakaerat Biosphere Reserve, Nakhon Ratchasima, Thailand (14.5025° N, 101.9248° E, Datum 47P, 511 m asl), we observed two adult male *O. fasciolatus* engaged in combat; shown in our photographs (Figs. 1 & 2) and our video (BHS video, 2021). The snakes were 5 m from the road within dry evergreen forest, consisting of little ground vegetation and a thick layer of dry fallen leaves. The battle occurred just after sunset (17:50 h), with an ambient temperature of 25 °C and 72 % relative humidity.



Figure 1. Two male *Oligodon fasciolatus* engaged in combat, exhibiting mounting behaviour

The authors' attention was first drawn to the snakes by the rustling of dry leaves as they fought. Combat continued as the presence of observers was ignored. The battle was characterised by raised heads and coiling around each other



Figure 2. The posteriors of two male *Oligodon fasciolatus* tightly entwined during combat

with their posteriors tightly entwined (Fig 2). From here each snake attempted to mount and press downward on the other with its head and neck (Fig 1). All movement was slow and graceful until one became pinned, where it would quickly jerk its head to the side to get free. This sequence of behaviour continued with the position of dominance switching between the two males. Combat continued until 18:10 h, where they broke apart and moved in different directions, with no sign of an apparent winner. Both specimens were caught and processed using isoflurane anaesthesia via inhalation and then released back to their place of capture within 24 h, permitted under: National Research Council of Thailand 110/61. Both individuals were probed and confirmed to be male, with a total length of 858 mm, 189.7 g (grey male) and 839 mm, 171.7 g (red male).

Although biting is common in the male combat of many non-venomous snake species, no bite wounds were observed nor found when the males were examined. An explanation for this may be attributed to the trauma inflicted from bites of this species. As with male combat in venomous species, the males may not be trying to incapacitate their opponent, just show dominance in intrasexual competition (Shine, 1994). This contrasts to intraspecific territorial behaviour over turtle nest food resources, where Huang et al. (2011) observed biting between *Oligodon formosanus*.

Intraspecific male combat in Old World colubrids has rarely been observed, particularly never in a small bodied semi-fossorial species. Shine (1978, 1994) predicted that in

all snakes where males grow larger than females, there will prove to be competitive interactions between reproductive males. This observation provides additional evidence for this prediction as male *O. fasciolatus* grow ~7 % larger than females. This observation contributes to the growing body of knowledge that male combat occurs in a greater number of snake species than previously thought, furthering our knowledge of the evolution of courtship and combat in snakes, with particular attention to its presence and rarity in smaller taxa (Senter et al., 2014).

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