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SHORT COMMUNICATION

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Responses of a copulating male common krait *Bungarus caeruleus* to the approaches of a rival male, with a link to video evidence

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The common krait *Bungarus caeruleus* is one of the most widespread krait species in South Asia, causing thousands of cases of snake bite morbidity annually (Bawaskar & Bawaskar, 2004; Ariaratnam et al., 2008). Currently, most of the information on the reproductive biology of *B. caeruleus* is confined to mating time and oviposition (Bannerman, 1905; Wall, 1908; Simon, 1942; Webb-Peploe, 1946). Herein we report observations of mating in the common krait *B. caeruleus* Schneider, 1801 with emphasis on the response of a mating male to a rival male.

While on a rescue call on 29 September 2023 at a residence in Billwagram, Bethuadahari, Nadia district, West Bengal (23° 34'37" N, 88° 23'02" E), DB observed a mating pair of *B. caeruleus* with the anterior portions of their bodies hidden inside a burrow in a boundary wall while the posterior portions, in copula, were outside the burrow and fully visible (Fig. 1A). A video recording was made of the behaviour shown by these snakes (BHS video, 2025). The female was slightly larger (~1 m) than the mating male (~0.9 m). According to local people, the snakes began mating at ca. 19:15 h, but our observations did not start until ca. 20:47 h, so that courtship behaviour was not recorded. A rival male approached the mating pair at ca. 21:02 h. The rival male touched the female's posterior body with its rostral scale and started tongue-flicking. Despite having its head inside the burrow, the mating male sensed the rival and started twitching its tail. The rival turned its head slightly towards the tail movement, started twitching its own tail, and then placed its head in the burrow (Fig. 1B) while the mating male's tail display continued. Shortly afterwards, the rival removed its head from the burrow (Fig. 1C) and tongue flicked the dorsum of the mating male's body. This elicited a strong lateral jerk causing the rival to retract. This was followed by another sudden retraction when the wiggling tail-tip of the mating male touched the rival's head. Thereafter, there was a retraction each time the rival's head or neck came in contact with the twitching tail of the mating male. The mating male then removed its head from the burrow and there began a combat-like ritual with the rival (Fig. 1D). The mating male began intercepting the rival by lateral head-jerks along with tail-twitches. The rival swayed and made several quick retreats whenever the mating male's head or tail touched the flanks of its head or neck. This ritual began at ca. 21:03 h and went on for approximately 97 seconds, with several short pauses of 3–10 seconds. At ca. 21:05 h the rival attempted to enter the burrow twice more with a gap of 10 seconds between each attempt, but was driven away by the mating male's tactics. At 18 seconds after the second attempt, the rival approached the burrow one last time, turned back and left the site permanently. From first sensing the rival male up to its final retreat, the mating male continued its tail display for approximately 3

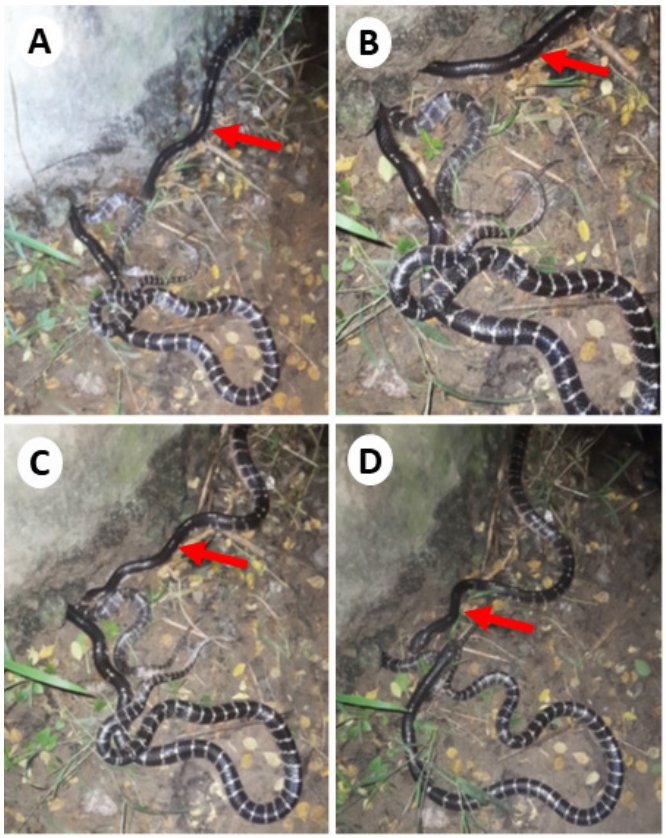

Figure 1. A mating pair of *Bungarus caeruleus* approached by a rival male (indicated by red arrows) - **A.** The partially visible mating pair with the anterior portion of their bodies in a burrow in a wall, a rival male is approaching from the right, **B.** The rival male has placed its head in the burrow, **C.** The rival male has withdrawn its head from the burrow, **D.** The mating male has withdrawn its head from the burrow and is engaging the rival

minutes 35 seconds. Copulation ended at ca. 21:13 h with visible separation of the genitalia, and the snakes left shortly afterwards.

The response of a mating male to a rival does not appear to have been recorded previously in *Bungarus* spp or other snakes. Unlike male combat, the male-male face-off in this case didn't involve attempts to pin down the opponent, possibly because this is impractical for a snake that is mating. The observed response would seem to be more similar to mate guarding behaviour that is shown by certain male snakes for some days after copulation, e.g. *Vipera berus* (Luiselli, 1995).

We are aware of two other observations of mating *B. caeruleus* in eastern and northern India. On 16 October 2023 on a rescue call, SG observed a mating pair of *B. caeruleus* in a residence in Koralimath, Bethuadahari, Nadia district, West Bengal (23° 34'59" N, 88° 22'22" E). The mating allegedly began at ca. 18:00 h and observation was continued from ca. 18:35 h onwards. The pair remained partially hidden inside a small burrow in the brick wall of a dilapidated house with only the caudal portions being visible (iNaturalist, 2024). The female showed signs of moulting. Mating continued until the snakes disengaged at ca. 20:10 h and went inside the burrow. We are also aware of an account and photos of *B. caeruleus* mating posted on Facebook (2024). The mating pair was observed near human settlements, in the early hours of 13 September 2019 in Aligarh city, Aligarh district, Uttar Pradesh (GPS waypoints unavailable). The pair copulated beside a mud wall, with the female being partially hidden inside a burrow in the wall. The pair was photographed and observed for nearly 20 minutes and left undisturbed thereafter.

Wall (1908) stated February and March to be the probable mating time of *B. caeruleus* whereas, Simon (1942) speculates November–early December to be the mating time based on his observation. Our observations suggest that at least in northern and eastern India, mating can begin from September (post-monsoon) onwards. Notably, this is similar to the mating time of this species in Sri Lanka (de Silva, 1986). Active use of natural hiding spots by the copulating snakes in all three cases suggests active threat avoidance.

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