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Wild Royal Pythons, *Python regius* (Shaw, 1802), in Senegal react variably to threats from potential chimpanzee (*Pan troglodytes verus*) predators

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The anti-predator behaviour of Royal Pythons (*Python regius*) is well-known for captive snakes (e.g., Mitchell, 2004; Rizzo, 2014; de Vosjoli, 2012), but relatively little is known of their reaction to non-human predators in the wild. Additionally, while reports of interactions between snakes and nonhuman primates exist in the primatological literature (Ramakrishnan et al., 2005; Weiss et al., 2015; Isbell and Etting, 2017; Schad et al., 2025), those accounts are biased towards the reactions of the mammals to the reptiles. In their case study of the vigilance of a Black-tailed Jameson's Mamba (*Dendroaspis jamesoni kaimosae*) to a passing wild Eastern Chimpanzee (*Pan troglodytes schweinfurthii*), Wallis and Greene (2023) noted that few accounts existed of how snakes react to potential threats by nonhuman primates. Here, we use data from a long-term study of wild West African Chimpanzees (*P. t. verus*) in a savanna-woodland environment at Fongoli, Senegal, to illustrate the reactions of wild *P. regius* to chimpanzees that threatened them.

Materials and Methods

Study site. The Fongoli study site is in southeastern Senegal, within the Sudano Guinean habitat type and part of the Mandingue Plateau (Kormos et al., 2003). The site is semi-arid, with rainfall averaging around 1000 mm annually and a short rainy season from June–October. Chimpanzees have been recorded to encounter snakes at least twice a month (Pruetz et al., unpubl. data), with most encounters involving African Rock Pythons (*Python sebae*). The study site (chimpanzee home range) comprises approximately 10 km^2 and is inhabited by people from the Malinke, Bassari, and Diahanke groups that practice shifting horticulture and artisanal mining.

Data collection. Chimpanzees at Fongoli have been studied since 2001, with habituation to observer presence allowing all-day follows and observational data collection beginning in 2005. The 35-member community of chimpanzees are followed from night nest to night nest on at least 15 days per month, and all observations of encounters with snakes and other large reptiles (e.g., tortoises, monitor lizards) are recorded opportunistically. Chimpanzees give specific alarm calls towards snakes (Nishida et al., 1999), which alert researchers to potential interactions. Researchers also investigate 'inquisitive huu' vocalizations (Nishida et al., 1999), which sometimes precede snake encounters.

Results

More than 60 encounters between Fongoli chimpanzees and potentially dangerous reptiles (snakes treated as a threat by chimpanzees) have been recorded between 2005 and 2025. During this 20-year span, only two cases of chimpanzee encounters with Royal Pythons were recorded.

Encounter 1. On 24 June 2017 at 07:52 h, the second author and a student were alerted to the possible presence of a snake by 'inquisitive huu' calls in a wooded area near a fallow field. They arrived to observe adult male 'Dawson' use a standing *Combretum* shrub to hit a ball python at least four times. Another adult male ('Luthor') used the same shrub to hit the snake once and then used a 1-m-long detached branch to hit near and prod the python several times. A third adult male ('K.L.') emitted soft 'huu' vocalizations, was vigilant towards the snake, and left the area. Adult female 'Lucille' also stood vigilant, looking at the snake, along with several other chimpanzees. After the chimpanzees left at 07:59 h, the second author found a ball python tightly coiled, with its head within its coils.

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Encounter 2. On 19 June 2025 at 07:00h, the authors were alerted to the presence of a snake by chimpanzee vocalizations (via diagnostic 'snake alarm' calls; Nishida et al., 1999) and vigilant behaviour (alert and staring) in a woodland area at the base of a termite mound. Adult females 'Tumbo' and 'Nickel', adult male 'Mike', and adolescent female 'Matilda', as well as two of 'Nickel's' dependent offspring, approached to look at the snake. A total of seven chimpanzees surrounded the snake, with five chimpanzees approaching to within a few metres of it (Fig. 1). 'Mike' approached to within 2 m and moved to intersect the direction the snake was moving. The python stopped in a relaxed sinusoidal position and then moved slowly to coil loosely at ground level around the base of a *Saba* vine shrub.

The chimpanzees dispersed approximately 5 min after the initial encounter but returned when one of the researchers lifted the snake and identified it as a Royal Python. After the interaction with the researchers, the python began moving off slowly, ultimately passing between the feet of one of the observers who had been filming it. After noticing that the researcher was holding the python (Fig. 1), one of the adult female chimpanzees emitted a scream and a more intense alarm call ('waaa' call; Nishida et al., 1999), and 'Mike' and another adult male chimpanzee ('Diouf') approached at 07:15 h apparently in response to her call. The first author had released the snake at the termite mound, and more chimpanzees approached to stare vigilantly at the snake again. 'Matilda' climbed onto an overhead limb at 07:22 h to watch the researcher observe the python as it entered a hole in the termite mound. At 07:24 h, 'Diouf' approached to look for the python and seemed to scare himself by touching a plant at 07:25 h. The python had already descended into termite mound at this point.

At ca. 07:26 h, adult female 'Farafa' approached the area, along with adolescent female 'Zoey'. 'Zoey' first stood on a log to visually search for the snake and then arrived to bend down and visually search where the chimpanzees had initially last seen the python. At 07:36 h, alpha male 'Cy' arrived in a dominance display, using vegetation to threaten other chimpanzees.

Figure 1. In Encounter 2 at Fongoli, southeastern Senegal, West African Chimpanzees (*Pan troglodytes verus*) surround a Royal Python (*Python regius*). The snake is not visible in the photo, but it is located at approximately the tip of the red arrow. (Inset) The first author holds the python that alarmed the chimpanzees. Photos by Joseph H. Furman and Jill D. Pruetz (inset).

'Mike' and adolescent male 'A.J.' paused as they passed near the termite mound where the python had been seen and subsequently disappeared. 'A.J.' remained and searched visually for the snake at 07:39 h. At 07:40 h 'Nickel' and her two dependent offspring cautiously passed the termite mound. 'Matilda' approached the termite mound and searched visually. After 07:40 h, no other chimpanzees remained in the vicinity of where they had seen the python.

Discussion

The two encounters between chimpanzees and Royal Pythons at Fongoli differed in the behaviours of both apes and snakes. In the first encounter, two adult males physically struck the python with an attached shrub or detached branch, causing it to assume the typical defensive posture of tightly coiling with its head within its coils. In the second encounter, the snake never exhibited a defensive posture during the approximately 40-min encounter, even when picked up by a human. None of the chimpanzees hit the snake, although several were prompted to issue alarm calls because of its presence.

Our cases support the interpretation that Royal Pythons appear less sensitive to airborne sound or pressure hearing than to vibration sensitivity (Christensen et al., 2012). Additionally, our experience suggests that proper handling by humans results in little stress to wild Royal Pythons, a fact not mentioned in the welfare literature, especially in West Africa where the greatest number of wild Royal Pythons is legally captured for the pet trade (Christensen et al., 2012).

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