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SIBLICIDE AND CANNIBALISM IN THE BOOTED EAGLE (*HIEEAAETUS PENNATUS*) IN THE TIETAR VALLEY, CENTRAL SPAIN

Facultative siblicide is assumed to occur in broods of the Booted Eagle (*Hieraaetus pennatus*; Simmons 1988, *Ibis* 130:339–357), although only minimal sibling aggression has been described in this species (Brown and Amadon 1968, Eagles, hawks, and falcons of the world. Country Life Books, London, U.K.; Steyn and Grobler 1981, *Ostrich* 52:108–118; Steyn 1982, Birds of prey of Southern Africa. David Philip, Johannesburg, South Africa). Furthermore, there are no records of cannibalism for this species. Here I report two instances of both siblicide and subsequent cannibalism recorded in the Tietar River valley (central Spain, 4°42′W, 40°40′N) in 2000, during observations made from hides. Detailed information of the study area can be found in García Dios and Viñuela (2000, *Ardeola* 47:183–190)

In a nest with two chicks, where observations started on 29 May 2000, the chicks were of similar size and about 5 d old. During my next visit (5 June), one chick was much larger than the other. On 7 June, the smaller chick had an obvious bare skin patch on its back, as if the down had been plucked out. On 8 June, the larger chick harassed and pecked the head and back of its sibling constantly; the adult birds were at the nest for short periods, but did not stop the sibling aggression. On the early morning of 10 June, the small chick begged less frequently and less loudly than during previous visits and the large chick pecked the smaller chick's head and back. A few hours later, presumably soon after the small chick died, the adult female started to feed the surviving chick with the remains of its sibling, providing 257 individual morsels.

The second record concerned a nest that contained two chicks about 2- and 4-d-old on 14 June 2000. Neither sibling aggression nor wounds were observed on that date. On 16 June, the female fed both chicks, but the small chick pecked at the head and back of its sibling repeatedly in the morning. On 18 June, the small chick initiated sibling aggressive behavior; the large chick pecked at its sibling less often but used more force. The adult female stopped the agnostic behavior by brooding both chicks. On 19 June, adults were not seen at the nest when I began observations. The small chick was more active than its larger sibling, it begged and moved around the nest, but no aggressive behavior was observed. The adult female brought one small prey, which was eaten by the large chick. Soon after, the small chick attacked but the large chick replied by pecking more often and also more forcefully than its sibling. This time, the female did not stop the sibling aggression. On 19 June, I climbed up the nest and found no prey remains. I made an examination of the chick's bodies and no wounds were observed, although the small chick was weak and emaciated.

On 20 and 21 June, I monitored the nest continuously from dawn to dusk and observed no prey deliveries to the nestlings. In the morning on 22 June, I observed the adult female pecking the head of the small chick, which seemed to be dead. During 4 hr the female brooded the two chicks. After that, she picked up the dead chick and started to feed the surviving chick, which was begging. The surviving chick ate 206 food morsels and the female 14. In this population of Booted Eagles, unlike in other areas (e.g., southern Africa; Steyn 1982), brood-reduction seems to be frequent; sibling aggression has been regularly observed in almost all of the nests monitored ($N = 21$) and at least two additional suspected cases of siblicide occurred during 2001.

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