

SHORT COMMUNICATIONS

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HUNTING ASSOCIATION BETWEEN THE APLOMADO FALCON (*FALCO FEMORALIS*) AND THE MANED WOLF (*CHRYSOCYON BRACHYURUS*) IN EMAS NATIONAL PARK, CENTRAL BRAZIL¹

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Abstract: Hunting associations between Aplomado Falcons (*Falco femoralis*) and maned wolf (*Chrysocyon brachyurus*) were observed in six occasions in Emas National Park, central Brazil. Falcons were successful in 25% of their hunting attempts. This association benefits the birds that hunt flushing tinamous missed by the wolf's attack. The predominant grassland habitat of the park enables the falcon to pursue prey in flight that were flushed by the wolf from tall dense grass.

Key words: *Chrysocyon brachyurus*, *Falco femoralis*, hunting association, feeding behavior, foraging, Emas National Park, Brazil.

Hunting associations between birds and mammals in South and Central America have been described for monkeys with Double-toothed Kite (*Harpagus bidentatus*) (Greenlaw 1967, Fontaine 1980, Boinski and Scott 1988, Stiles 1989, Egler 1991, Heymann 1992), coatimundi (*Nasua nasua*) with falcons (Sick 1984), and for sea birds with dolphins (Monteiro-Filho 1992). We found no literature describing bird association with canids.

Here we describe hunting associations between maned wolves (*Chrysocyon brachyurus*) and the Aplomado Falcon (*Falco femoralis*) in Emas National Park (ENP), Brazil's largest piece of continuous undisturbed cerrado. The cerrado is a savanna-like vegetation predominant in central Brazil (for a better description of cerrado see Eiten 1972, 1991). The Maned Wolf is a 23 kg solitary hunter which spends a large proportion of its diurnal activities foraging in open habitats, feeding mainly on fruits, small mammals, and tinamous (Tinamidae) (Dietz 1984). The Aplomado Falcon weighs about 235 g and feeds on insects and small vertebrates, such as lizards, rodents, and birds (Sick 1984). The Aplomado Falcon is relatively common in ENP, where it is sympatric with four other similar-sized raptors.

From July 1994 to July 1995, we observed Maned Wolves nine times in ENP for a total of 587 min.

Six of those occasions, for a total of 488 min, were falcon-wolf associations. All observations were made between 08:10 and 19:13 (Table 1). The falcons were noted following a wolf at distances varying from 3 to 30 m. Out of 6 observations, 2 had pairs of falcons and 4 had single birds following the wolf.

In the first observation of a maned wolf, from 11:49 to 18:29, only one falcon was noted in association with the wolf until 14:10, when a second falcon appeared and engaged in a feet-to-feet display with the first bird. Brown and Amadon (1968) describe this foot-touching display for species which pair for life; it maintains their pair bond outside the breeding season. This interaction lasted for a few minutes until the birds split and began following the wolf, one on each side of the animal. At 17:43 the wolf lunged and missed a Red-winged Tinamou (*Rhynchoceros rufescens*). The tinamou was immediately followed in flight and captured by one of the falcons. The unsuccessful falcon returned to follow the wolf until 18:29. During this observation, out of 22 hunting attempts, the wolf captured a prey six times (three seven-banded armadillos [*Dasyptes septencinctus*], two tinamous [*Nothura maculosa*] and an unidentified small mammal) and missed 10 unidentified prey, three prairie chickens and three tinamous. These birds fled from the mammalian predator with low, short flights and were closely chased by the falcon. Out of the six hunting attempts of the falcons, two succeeded, in which a *Nothura* and a prairie-chicken were captured.

On another occasion, from 17:26 to 17:46, after beginning the observation a second falcon appeared and interacted with the first bird. Subsequently, the two birds followed the wolf. They kept a short distance from each other, perching on nearby bushes on each side of the wolf. No successful hunt was observed for either species. In a third observation, from 17:08 to 17:38, a falcon showed up at 17:23 and followed the wolf for only 15 min, probably because of the poor visibility at dusk. During this period four unsuccessful attempts of the wolf were recorded, one *Nothura* and three unidentified prey. Of these prey, the falcon attempted to capture only the *Nothura*, but without success. In a fourth observation, from 17:32 to 18:08, the wolf preyed on a rodent, on an unidentified prey, and attempted, without success, to catch

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TABLE 1. Aplomado Falcon (*Falco femoralis*) and maned wolf (*Chrysocyon brachyurus*) hunting attempts during six observations of hunting associations in Emas National Park. (ROD = unidentified rodent; ARD = armadillo (*Dasyus septemcinctus*); RWT = Red-winged Tinamou (*Rynchothus rufencens*); TIN = tinamou (*Nothura maculosa*); PAS = passerine; UND = unidentified prey).

Observation no./time	Number of falcons	Hunting attempts								
		Wolve's prey						Falcon's prey		
		ROD	ARD	RWT	TIN	PAS	UND	TIN	RWT	PAS
1 11:49-18:29	2	—	3	3	5	—	11	3	3	—
2 17:26-17:46	2	—	—	—	—	—	1	—	—	—
3 17:08-17:38	1	—	—	—	1	—	3	1	—	—
4 17:32-18:08	2	1	—	1	—	—	1	—	—	—
5 19:11-19:13	1	—	—	—	1	1	—	—	—	1
6 08:10-08:11	1	—	—	—	—	—	—	—	—	—
Total Attempts		1	3	4	7	1	16	4	3	1
Total Success		1	3	0	3	0	2	1	1	0

a prairie chicken which fled without being noticed by the falcon. On a fifth observation, from 19:11 to 19:13, the wolf preyed on a *Nothura* and failed to capture a small passerine that was subsequently chased by the falcon, without success. In the sixth observation, from 8:10 to 8:11, the presence of a falcon was recorded but no hunting was observed in either species.

During the six observations, wolves attempted to capture prey on 32 occasions, and were successful in 28% (9/32) of the attempts. The falcons associated with a wolf attempted to capture prey on eight occasions and were successful in 25% (2/8) of the attempts. The Aplomado Falcons showed an opportunistic behavior in hunting the birds that escaped the wolf's attack. Of the wolf's vertebrate prey, ground birds appear the most prone to falcon predation during escapes. Because of their noisy and low flight, ground birds were immediately detected by the falcon.

According to Brown and Amadon (1968), daily food intake in small active raptors may reach about 25% of the bird's body weight. A tinamou weighing around 300 g and a prairie-chicken 900 g corresponds to 128% and 383%, respectively, of an Aplomado Falcon's body weight. The apparent low capture success of the Aplomado Falcon, appears to be largely outweighed by the large prey size. Because wolves spend a large proportion of their diurnal activities hunting, it seems worthwhile for the falcon to follow them as they flush prey from tall, dense vegetation. Grassland habitats cover 97% of the Park's area which contributes to the success of this falcon-wolf association by allowing good visibility and few obstructions in flight for the falcon to pursue avian prey missed by the wolf.

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