

NECROPHILIC BEHAVIOUR, CORPSES AS NUCLEI OF RESTING FLOCK FORMATION, AND ROAD-KILLS OF SAND MARTINS

RIPARIA RIPARIA

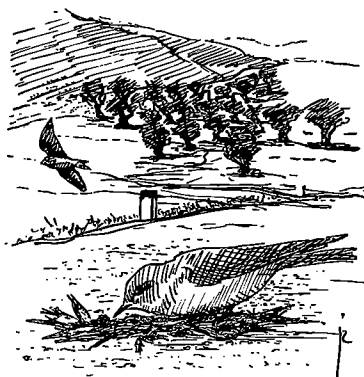
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Many animal populations are affected by road-kills. In this note I report that corpses of road-killed Sand Martins *Riparia riparia* attracted conspecifics and thereby increased mortality risk. Close to a lake in northern Greece I observed large numbers of Sand Martins, many of which rested on a road, and seven dead martins were found among them. In six trials I placed the corpses at different places on the road or on a nearby parking area, and in every case new resting flocks of 50-500 individuals formed by the first individuals landing < 0.5 m away from the corpses. Further, in each experiment at least 1-5 individuals mounted and attempted to copulate with the corpses. Thus, attraction of conspecifics to corpses, possibly enhanced by necrophilia, may increase rates of road-kills.

Key words: *Riparia riparia* - copulation - flock formation - necrophilia - road-kill

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Road traffic is responsible for increased mortality rates in many animal populations (Fahrig *et al.* 1995; Groot Bruinderink & Hazebroek 1996; Clarke *et al.* 1998; Forman & Alexander 1998). The primary victims of collisions with vehicles are individuals with territories or home ranges close to roads (Mumme *et al.* 2000) or dispersing individuals (Lodé 2000). However, road-killed animals attract a secondary class of potential victims, namely predators and scavengers which come to feed on the corpses (Forman & Alexander 1998, Lodé 2000). In this note it is pointed out that corpses may also attract conspecifics, especially in flocking species. Observations are reported of the Sand Martin *Riparia riparia*, indicating that corpses may act as nuclei of resting flock formation, and that this may even be enhanced by necrophilia.

On 14 July 2000 Limni Doiranis in Northern Greece (41°11'N, 22°46'E) was visited. Approxi-

mately 2000 Sand Martins had congregated to feed on swarms of midges (Chironomidae) along the eastern side of the lake. Several hundreds were resting on a two-lane road with little traffic, but even so there were seven dead martins, presumably killed by cars, among the live birds on the road. The corpses were moved to an adjacent parking area (about 50 m x 20 m), and it was noticed that when the Sand Martins returned, the first individual landed less than half a meter away from the corpses which had been placed within an area of 1 m x 1 m. The next individuals also landed within half a meter from the corpses, or within half a meter from the flock of birds forming near the road-kills. The corpses were relocated a further five times, in each case at least 20 m from the previous site. The flock which had formed took off, but Sand Martins were attracted again within 2-5 min. The first bird to land always did so within half a meter from the corpses, and resting

flocks of 50-500 individuals were formed around the corpses. Attraction to corpses was apparently strong for the Sand Martins observed here, although I know of no previously described cases of corpses serving as nuclei of resting flock formation.

Several individuals which had landed close to corpses mounted and attempted to copulate, i.e. obtain cloacal contact, with the dead birds. In each of the six experiments at least 1-5 individuals were seen to do this (mean >2.7). I cannot exclude the possibility that it was the same individuals which attempted to copulate in different experiments, but the behaviour was at least shown by several different individuals, and they were also among those that initiated flock formation. Necrophilic behaviour has rarely been reported in the literature. Brown (1998) observed at least ten male Cliff Swallows *Petrochelidon pyrrhonota* attempting to copulate with a road-killed female. Slavid and Taylor (1987) observed a male Feral Pigeon *Columba livia* attempting to copulate with the corpse of another individual which had been killed by a car. On Norwegian television, a video was recently shown of a male hybrid between Black Grouse *Tetrao tetrix* and Capercaillie *T. urogallus* which first had killed a male Black Grouse on a lek and then attempted to copulate with it. Further, stuffed females may elicit copulation attempts by male birds during the breeding season (T. Slagsvold and J.T. Lifjeld, pers. comm.). In the present case, however, copulation attempts occurred one to two months after the breeding season. Copulations outside the breeding season are uncommon among live birds (Colwell & Oring 1989; Wagner 1991), but the lack of resistance of the corpses may have stimulated such behaviour in the present case. Other observations also indicate that copulation attempts may be directed towards individuals unable to resist because of injuries or diseases (Goodwin 1965; Simmons 1985).

Thus, my observations indicate that corpses may attract conspecifics because they can serve as nuclei of resting flock formation. Necrophilia may have further increased the attractivity of the

corpses. In turn, this will increase the danger that additional individuals may be hit by cars and a vicious circle may develop. In general, swift removal of corpses seems necessary in order to reduce the number of individuals killed of flock forming species. On the other hand, one can argue that this pattern may not have general significance since there are few reports of corpses attracting conspecifics and since necrophilia may be a rare phenomenon. However, I suggest that this may be due more to a lack of relevant observations than to a rarity of the behaviour. Hence, road mortality due to conspecific attraction to corpses might be common enough to justify actions to remove corpses from roads as soon as possible. When I left the study area I placed the corpses on the parking area to stimulate flock formation there instead of on the road itself.

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SAMENVATTING

Op een weg in Noord-Griekenland bleken zeven dode Oeverzwaluwen *Riparia riparia* grote aantallen soortgenoten aan te trekken, waarvan er vele op de weg gingen zitten. Bij verplaatsingsproeven kozen de zwaluwen telkens nieuwe rustplekken op minder dan een halve meter afstand van de lijkjes. Tijdens elk experiment probeerden één tot vijf Oeverzwaluwen te copuleren met de verkeersslachtoffers. De aantrekkingskracht van dode soortgenoten vergroot de kans op extra slachtoffers door wegverkeer. (RGB)

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