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Brief report

Tits (*Parus major* and *Parus caeruleus*) preying upon hibernating bats

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Many bird species can more or less regularly prey on bats (Speakman 1991 for review). Speakman (1991) estimated that avian predation accounted for about 11% of the annual mortality of bats in Britain. Predation was suggested to be a major selective force for bat colonial and roosting behaviour (Kunz 1982). There are some reasons to suppose that roosts, and especially hibernacula might attract predators. First, hibernacula often group numerous bats whose activity during the time of hibernation is very low. Second, hibernation takes place during the time when food is scarce for many predators. Consequently, one could expect that at least some predators may develop the ability to exploit bat hibernacula. In accordance with this, even so atypical predators as mice (*Apodemus*) were reported preying on hibernating bats in the Netherlands (Bekker & Mostert 1990).

The present observations were conducted in the Szachownica cave, central Poland (51°04´N and 18°50´E), which is part of the most important bat hibernacula in the country. The limestone hill in which the cave is contained is covered by woods. The sum of the length of corridors is more than 1 km. In addition to the natural cave system, there are some artificial rooms resulting from the past exploitation of the stone. At least nine species of bats have so far been observed in the cave (Kowalski & Lesiński 1991, Hejduk & Radzicki 1996). The present observations were done during winter 1996 as part of a long-term study of the species composition of bats hibernating in the Szachownica cave. The winter was very frosty with snow cover, and the mean night temperatures were –10°C to –15°C from early January to early March.

On 22 January 1996 we observed a flock of Great and Blue Tits (*Parus major* and *Parus caeruleus*) flying out of the cave and around. Within the cave we found three bats with injuries evidently made by tit beaks. We had previously seen this type of injuries on the bodies of small birds that happened to be caught in mist nets with Great or Blue Tits. We first found a dead Barbastelle *Barbastella barbastellus* with a major injury on its back and head, with the brain having been partly eaten. We also found two injured bats which were still alive. A Common Long-eared Bat *Plecotus auritus* was injured on the back and bottom parts of its body. Similarly, a Natterer's Bat *Myotis nattereri* was badly injured on its back. The first two

bats were found in big rooms, c. 10 m from an entrance, while the third one was in a small chamber around 2 m × 2 m × 2 m, c. 4 m from another entrance to the cave. Some light from the outside of the cave penetrated into all three of these locations.

We are aware of only one report about tits (*Parus*) preying on bats (Ryberg 1947). No observation of such behaviour was reported by Cramp and Perrins (1988). Sachanowicz and Krasnodębski (1996) saw a Great Tit feeding on the dead body of a Barbastelle in the entrance to the Szachownica cave. As in the case reported in this communication, these authors also recorded an especially characteristic habit of the tits pecking away the rear and back part of bat bodies where bats have a deposit of brown adipose tissue which is used for heat generation when rewarming from torpor.

Tits are very well known to be quite flexible in their foraging behaviour, so that they easily learn to exploit novel food sources (Perrins 1979, Gosler 1994 for review). The classic example is their habit of opening the tops of milk bottles to drink the cream, as recorded in Britain and some other European countries (Fisher & Hinde 1949, Hinde & Fisher 1952). They can also learn to use highly atypical food during the breeding period, which was shown for Corsican Blue Tits feeding on Stick Insects (*Phasma* sp) (Bańbura et al. 1994).

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Selostus: **Tali- ja sinitiaisen havaittu syövän talvehtivia lepakoita Puolassa**

Kirjoittajat raportoivat Keski-Puolassa tekemistään havainnoista, jotka osoittavat tali- ja sinitiaisten syöneen horrostavia lepakoita niiden talvehtimisluolissa. Tammikuussa 1996 kirjoittajat havaitsivat tiaisparven lentävän ulos luolasta. Luolasta he löysivät kolme lepakkoa, joilla oli selkeitä nokkimisjälkiä. Yksi lepakoista (laji mopsilepakko) oli kuollut ja sillä oli vammoja sekä selässä että päässä, mm. aivot oli osittain syöty. Kaksi muuta lepakkoyksilöä (lajit ripsisiippa ja korvayökkö) olivat vielä hengissä ja niillä oli nokkimisjälkiä vain selässä ja ruumiin takaosassa. Näillä alueilla ruumista lepakoilla on ruskean rasvan kudoksia, joita käytetään ruumiinlämmön nostamiseen horroksesta herättäessä. Kaikki syödyt lepakot löytyivät paikoista, johon pääsee jonkin verran päivänvaloa.

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