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Brief report

Sparrowhawks kill large-sized prey by drowning

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The Sparrowhawk (*Accipiter nisus*) easily kills small prey with a grasp of its talons. Killing large prey, like pigeons, Jackdaws (*Corvus monedula*) or mammals with sharp teeth, is difficult and dangerous (Cresswell 1996, Rämsberg 1997). When a large prey battles for its life, it may injure the Sparrowhawk. Thus, although a large prey provides an abundant source of food, it may be a risk for a predator. In this note I describe how two Sparrowhawks overcame this problem by using a drowning technique.

On 4 April 1993 at the harbour of Tammisaari village in Southern Finland, I saw a Sparrowhawk flush a flock of feral pigeons (*Columba livia*). The hawk caught a pigeon in the air. The hawk flew to the harbour pool which was covered with ice. When I saw the hawk again, it stood in a small pond on the ice and kept the pigeon under water. After about two minutes, a disturbance by pedestrians forced the hawk to fly away and leave the dead pigeon floating in the pond.

On 18 August 1995 while heating a sauna within a dense mixed forest at the shore of Lake Pääjärvi in Southern Finland, I heard sudden splashes from the shoreline. I saw waves in the direction of the noise and a Sparrowhawk standing in shallow water. The hawk stood in the water for several minutes. It then jumped onto dry ground with a dead squirrel (*Sciurus vulgaris*) in its talons. The hawk stayed about 10 minutes at the shore and then flew away with its prey.

In both cases the hawks had the opportunity to land on dry ground either on the solid ice at the harbour or on the shore of Lake Pääjärvi. The hawks, however, preferred landing in shallow water and kept their prey under water. This behaviour suggests that the hawks consciously killed their prey by drowning.

Sparrowhawks have been reported to drown Eurasian Jay (*Garrulus glandarius*, Weekley 1997), Magpie (*Pica pica*, Drew 1997), Blackbird (*Turdus merula*, Broadley 1985), European Starling (*Sturnus vulgaris*, Wells 1997) and two Corn Buntings (*Miliaria calandra*, Ralston 1997). The reported cases of drowning concern preys with body mass > 30 g. During breeding season in Sweden 28 of the 46 species of prey had mass < 25 g (Götmark & Post 1996). Therefore the reported cases of drowning concern large-sized preys at least for a small male Sparrowhawk. The drownings reported earlier support the finding of this note: the Sparrowhawk can consciously kill its large-sized prey by drowning.

Killing by drowning can be expected to increase killing success and reduce potential injuries during the battle with the prey. The reduced

injuries and an abundant source of food from a large-sized prey increase the survival of the Sparrowhawk. With the help of the drowning technique breeding hawks can provide a secure source of large-sized preys for their young. Thus, the life span is longer and the life-time production of young is higher within those Sparrowhawks mastering the technique than within those who cannot drown their prey. Although it is not known whether and how the drowning technique inherits from parents to young, the advantages of the drowning technique suggests that it spreads easily among Sparrowhawks. For example, if the drowning technique increases breeding success e.g., by 1% to 5%, the hawks mastering the drowning technique become dominants in less than 100 generations. Because Sparrowhawks and the interfaces between water and land have existed together for thousands of years, it can be expected that the drowning technique is widespread among Sparrowhawks.

To drown its prey a hawk must seek for it near water and must have long legs to keep the prey under water. The Sparrowhawk, as well as some other hawks e.g., in the genus *Accipiter* or *Circus*, have these adaptations needed for drowning. The reported cases of drowning, however, are scarce perhaps because the actual killing of a prey is often difficult to observe. For example, harriers (*Circus*) often disappear in dense vegetation to catch and kill their prey. The advantages of the drowning technique and the adaptations required for it are not limited only to the Sparrowhawk. Other similar hawks likely drown their large-sized prey too.

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Selostus: **Varpushaukka tappaa suurikokoisen saaliin hukuttamalla**

Retkeillessäni Tammisaaren satamassa havaitsin varpushaukan nappaavan kesykyyhkyn kynsiinsä suoraan ilmasta. Haukka lensi kyyhky kynsissään jäätyneelle satama-altaalle. Siellä se laskeutui jäällä olevaan lammikkoon ja piti kyyhkyä veden alla. Parin minuutin päästä ohikulkijat säikyttivät haukan lentoon ja pulu jäi kellumaan kuolleena lammikkoon.

Lämmittäessäni Lammin biologisen aseman saunaa kuulin yhtäkkiä läiskettä rantavedestä. Äänen suunnassa seisoi varpushaukka rantavedessä. Muutaman minuutin päästä haukka loikkasi rannalle, jolloin huomasin kuolleen oravan sen kynsissä. Kymmenen minuutin lepohetken jälkeen haukka lensi saaliineen pois.

Kummankin havainnon yhteydessä varpushaukoilla olisi ollut tilaisuus laskeutua kuivalle alustalle joko jäälle Tammisaaressa tai järven rannalle Lammilla. Haukat laskeutuivat kuitenkin matalaan veteen hukuttaakseen saaliinsa. Havaintoni viittaavat siihen, että tilaisuuden tullen varpushaukka tappaa suurikokoisen saaliinsa hukuttamalla.

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