

**Post, Peter. 2002. Predation by sparrowhawks on breeding passerines: the role of habitat, behaviour and sex of prey.**

Animal Ecology, Department of Zoology, Göteborg University, Box 463, SE 405 30  
Göteborg, Sweden.

E-mail: [peter.post@zool.gu.se](mailto:peter.post@zool.gu.se)

Key words: predation, predation risk, sparrowhawk, *Accipiter nisus*, chaffinch, pied flycatcher, blackbird, sex, size, abundance, habitat, visibility, vegetation, foraging, time budget, breeding behaviour.

**Abstract**

Predation is an important ecological and evolutionary process that can exert strong selection in prey species. This thesis focuses on predation by sparrowhawks *Accipiter nisus* on adult birds, in relation to various traits of 46 species of breeding passerines, and to sexual differences in breeding behaviour of three passerine species.

In a field study of hawk predation on passerines, relative predation risk increased with prey body size up to a mass of about 40 g, then declined with increasing body size. Predation risk decreased with (1) increasing relative density of prey species, (2) increasing foraging height, (3) increasing perch height, and (4) decreasing exposure of prey species. Forest birds ran the highest predation risk early in the breeding season. Later on hawks seemed to catch prey mainly in urban areas, forest edges, and farmland.

The decline in predation risk for species nesting in forest in late spring could be due to reduced visibility from leafing and growing ground vegetation. I found no support for this idea, as visibility in forest and other habitats was relatively similar when most vegetation was developed. Prey behaviour, prey density, and production of fledglings in conjunction with sparrowhawk reproductive tactics probably determine seasonal predation patterns.

Breeding males often have conspicuous coloration, song and active territory defence, whereas females are typically less conspicuous both in plumage and behaviour. However, some studies of birds have reported female-biased predation. Egg production and incubation is energetically costly, requiring high foraging rates in breeding females. In turn, foraging should increase mobility and reduce anti-predator vigilance, thereby raising the predation risk. In both blackbird *Turdus merula* and chaffinch *Fringilla coelebs* breeding females were more active, foraged more, and were found closer to, or more on the ground than males; behaviours that should lead to high predation on females. Prey remains from breeding sparrowhawks contained significantly more females than males of these two species. In the pied flycatcher *Ficedula hypoleuca* I found no sex-bias in predation. Although females foraged more than males, females were less exposed and stayed higher up in the trees, which may reduce the risk when foraging. Pied flycatchers also spent most of their time perched in trees scanning for prey, making short foraging bouts, which probably allows them to scan for predators while foraging.

ISBN 91-628-5126-8

Cover illustration: Dag Peterson