åtskilliga år tillbaka helt övergått till betesdrift med får, hästar eller kor. Detta är naturligtvis något att ta hänsyn till om man ur ett ornitologiskt perspektiv ska ge synpunkter på områdets framtida skötsel.

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Summary

On the breeding of the Red-necked Phalarope Phalaropus lobatus *on farmland*

In 2001 a nest of the Red-necked Phalarope was found by de Jong (2002) on farmland at the Ammarnäs delta in Lapland. He raised the question whether this was an occasional record or an overlooked phenomenon. I have during the years 1984–1997 followed the bird life of this delta. In 1991, 1994–1995, and 1997, I made repeated visits and careful notes on species and numbers.

The Red-necked Phalarope occurs in the delta regularly. A spectacular event is the accumulation of birds in late May and early June, before their breeding grounds in the higher mountains become available. Up to 500 birds may be seen in one single flock. When these birds have disappeared, small groups always stay in the delta. Up to twenty birds in late June is not unusual. These birds behave as if they are breeding in the delta.

At four occasions, in 1989, 1994, 1995, and 1997, I have found nests. The earliest nest with eggs was found on 13 June, and the young had left the nest on 22 June. The eggs in the other nests were still being incubated on 25 June. It seems that the phalaropes start to lay eggs when the water retreats after the regular flooding in connection with snow-melting in the higher mountains.

The delta is managed in two different ways. One part is used for hay production, with some grazing mainly after harvest, a mode of use that has changed little since the 19th century. It was in this part that the phalarope nests were found, including that found by de Jong. Another part of the delta is used for grazing by sheep, cattle and horses during the whole summer. This latter part seems to be less suitable for the phalaropes and also for other birds. This is an observation that must be taken into account when planning future management of the area.

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Male House Sparrow *Passer domesticus* copulates successfully despite broken leg

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During a 1996 study of House Sparrow *Passer domesticus* breeding ecology at the University of Kentucky's Agricultural Research Station on the outskirts of Lexington, Kentucky, USA, a male was observed having difficulty copulating with his partner. During copulation in the House Sparrow, as in most passerine species (Birkhead & Møller 1992), the male flaps his wings and scrabbles with his legs in an attempt to press his own cloaca against the female's for 1–2 seconds. In this case, however, the male struggled to maintain a constant position and only achieved a very brief (about 0.1 seconds) cloacal contact before sliding sideways from his partner's rump.

A few days later, during routine trapping using seed-baited cages, a male was caught which had a broken right femur. The firm tissue around the area of the break indicated that this was not a recent injury, and the bird appeared to be in good condition judging by its body mass, pectoral muscle thickness and plumage quality. Hence it was fitted with an individual combination of three plastic colour rings and a single United States Fish and Wildlife Service numbered metal ring, then a small blood sample was taken and the bird was released.

The trapped male was in fact the focal male, who continued to copulate with difficulty over the next few days, presumably because of his broken femur. During this period his mate laid a clutch of five eggs, all of which hatched. The male provisioned the nestlings at a rate comparable to the other males in the population, indicating that the broken leg did not critically impair his ability to forage, and all five young fledged successfully.

Although this suggested that the broken leg had not prevented the male from inseminating his mate, it was possible that one or more other males had actually fathered the brood. For example, in a study of Red-winged Blackbirds *Agelaius phoeniceus*, Bray et al. (1975) found fertile eggs within the territories of males which had been experimentally vasectomised, indicating that their mates had copulated with one or more other males. We therefore used a PCR-based technique to determine whether the nestlings had been fathered by their attendant male. DNA was

extracted from blood samples taken from the male and the nestlings using a resin-based technique (Walsh et al. 1991), and amplified at three polymorphic microsatellite loci (*Pdoμ*3 and *Pdoμ*4, Neumann and Wetton 1996, and *Pdoμ*6, Griffith et al. 1999). PCR products were electrophoresed through 4% denaturing polyacrylamide gels and visualized using silver staining (Bassam et al. 1991). All five nestlings shared at least one allele with the attendant male at each of the three loci. Since the probability that a random male shares an allele with an individual nestling at all three loci is less than 0.008 (Stewart 1999), the attendant male was considered to be the genetic father of the entire brood.

Coincidentally, in the same study an unringed female was observed in an aberrant posture on top of her nestbox, and observations made using a telescope revealed that she had a broken left femur. When the female attempted to copulate about a week later, her body sagged towards her left side while she crouched, and her partner appeared to slide sideways from her rump without achieving cloacal contact. Copulations with the same result were made repeatedly over several days, after which the female laid a clutch of three eggs and commenced incubation. After fifteen days, which is five days longer than the usual incubation period in this population (Stewart 1999), the eggs were removed and found to be undeveloped and presumably infertile.

In order to copulate, female passerines have to move aside their tail and then simultaneously twist and elevate their ventral cloaca upwards, whereas males merely have to position themselves such that their cloaca contacts that of the female (Birkhead & Møller 1992). The manouevrability that each sex requires probably explains why a male with a broken leg was able to copulate successfully whereas a female with a broken leg was not.

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Sammanfattning

Hane av gråsparv Passer domesticus *kopulerar framgångsrikt trots brutet ben*

Under en studie av gråsparvens häckningsbiologi vid Agricultural Research Station, University of Kentucky, i utkanten av Lexington observerade vi en hane som hade svårigheter att kopulera med sin partner. Normalt har en hane kloakkontakt med honan under 1–2 sekunder när han bestiger henne. I detta fall lyckades hanen bara få kontakt någon tiondels sekund innan han gled av sidledes. Några dagar senare fångades en hane med brutet högerben (femur). Skadan var gammal och fågeln var i god kondition. Den försågs med färgringar och ett blodprov togs.

Hanen visade sig vara den aktuella hanen, som sedan fortsatte att kopulera med samma svårighet de närmaste dagarna. Under denna period lade honan fem ägg vilka alla kläcktes. Hanen matade ungarna med samma frekvens som övriga hanar i populationen och alla fem ungarna blev flygga.

För att ta reda på om det var den skadade hanen som var far till ungarna tog vi blodprover också från ungarna. DNA extraherades från ungarnas och hanens blod och analyserades för tre loci. Alla fem ungarna hade minst en allel gemensam med hanen vid vart och ett av de tre loci. Sannolikheten för att en annan hane skulle vara far är mindre än 0,008, varför vid drog slutsatsen att den skadade hanen var far till alla ungarna.

Av en händelse råkade vi få syn på en hona som också hade brutet ben (också femur). När hon försökte kopulera en vecka senare vek sig benet och hanen gled av utan att synbarligen haft någon kloakkontakt. Under de följande dagarna observerade vi flera sådana misslyckade kopulationsförsök, efter vilka honan lade en kull om tre ägg. De ruvades i 15 dagar, vilket är fem dagar längre än normalt, och äggen visade sig vara utan embryon och därför förmodligen obefruktade.

För att kunna kopulera måste en hona vrida stjärten åt sidan och vända sin på undersidan belägna

kloak uppåt, medan hanen bara behöver sätta sig i sådan position på honan att hans kloak kommer i kontakt med hennes. Detta förklarar troligen varför en hane men inte en hona med brutet ben kan kopulera framgångsrikt.

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Tree Sparrow *Passer montanus* freezing in the presence of a Sparrowhawk *Accipiter nisus*

JOHAN LIND

Cryptic behaviour is a common example of a passive defence in animals enabling prey to reduce the likelihood of being detected by a predator (e.g. Edmunds 1974). One such common behaviour enabling birds to be cryptic is freezing behaviour, which is commonly exhibited by birds in response to the presence of a predator (Slater 1999).

A striking example of freezing behaviour in Tree Sparrows *Passer montanus* was observed at Tovetorp Zoological Research Station in south-eastern Sweden on 28 February 2002. I observed a Sparrowhawk *Accipiter nisus* launching an attack, at 14.45 in the afternoon, towards a feeding station located underneath a birch tree where Great Tits *Parus major*, Blue Tits *P. caeruleus*, Tree Sparrows and Greenfinches *Carduelis chloris* where foraging. The Sparrowhawk attack was not successful, and as a result all birds at the feeder escaped apart from one Tree Sparrow. Tits and Tree Sparrows escaped towards protective cover approximately ten meters away whereas the Greenfinches escaped into midair and perched in a birch tree some distance away. After the unsuccessful attack the Sparrowhawk perched in the birch approximately two meters above ground well within the branches keeping it quite concealed, and only three meters away the remaining Tree Sparrow stayed on top of one of the feeders. The Tree Sparrow started to freeze when it detected the Sparrowhawk, and it remained motionless in a crouching position holding the body in a horizontal stance. Ten minutes later, at 14.55, the first bird, a Great Tit, made the first approach towards the feeder. When the tit was flying towards the feeder the Sparrowhawk took off and intercepted it. After three to four twists and swirls the hawk managed to catch the tit which tried to outmanoeuvre the hawk by turning back towards the protective cover. The Sparrowhawk then flew into a nearby forest with the tit in its feet. The Tree Sparrow was still freezing and there were no other birds at the feeder. At 15.05 Great Tits and Blue Tits flew into the top of the birch tree, approaching the feeding station and the first birds started to feed at 15.10. Five minutes later, at 15.15, the activity was normal at the feeding station with plenty of birds foraging. The Tree Sparrow had remained motionless the whole time and it had not started to move yet. At 15.17 the Tree Sparrow started to move its head and one minute later, 15.18, it flew down to the closest feeder and resumed its feeding.

The Tree Sparrow froze for a total of 32 minutes and despite being perched only three meters away from the sparrowhawk for ten minutes it avoided detection. This could also be explained by the Sparrowhawk not having a completely clear view towards the Tree Sparrow since some branches may have obstructed the view in that direction. Nevertheless, the freezing behaviour by the Tree Sparrow was probably a very appropriate response minimising the risk of being detected by the Sparrowhawk. This behaviour is also often observed as a response to alarm calls in birds (Ficken & Witkin 1977, Ficken 1990) and it is also often displayed after predators disappear leaving birds behind with incomplete knowledge of the predator's location (Kullberg & Lind 2002).

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Sammanfattning

Pilfink Passer montanus *fryser i närvaro av sparvhök* Accipiter nisus

Att bete sig kryptisk är ett exempel på en anti-predatorstrategi hos bytesdjur som minskar sanno-