

Territorial behaviours of the female Marsh Harrier (*Circus aeruginosus*) in Kvismaren 2016

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The Marsh Harrier in Kvismaren have shown an increase in numbers the last years and also developed a tendency to breed in closer distance to each other than in the past. We have studied the behavior of females. They generally hunt closer to the nest than males. In this year study have we noted that three females went for long hunting trips over an hour, which is uncommon. Also two females shared regularly a hunting ground over nearby fields, also uncommon.

Population development

Figure 1 shows the number of pairs of the Marsh Harrier in Kvismaren from 1957–2016. During the 1990s there was an increase in the number of pairs because of changed farming policy, while the number declined again in the 2000s (Wretenberg et al. 2007, Sondell 2011). There has again been a rapid increase in recent years reaching its highest record this year. When there are so many females who

build nests, it becomes difficult for the observer to separate all. We have made some adjustments to the estimated number of pairs and believes now that 20 females built nests, but it may actually have been as many as 24 who started breeding but then a few abandoned their nests early. We might therefore have had some cases where a female started a nest and then gave up early. A male may have had two females which complicate the counting.

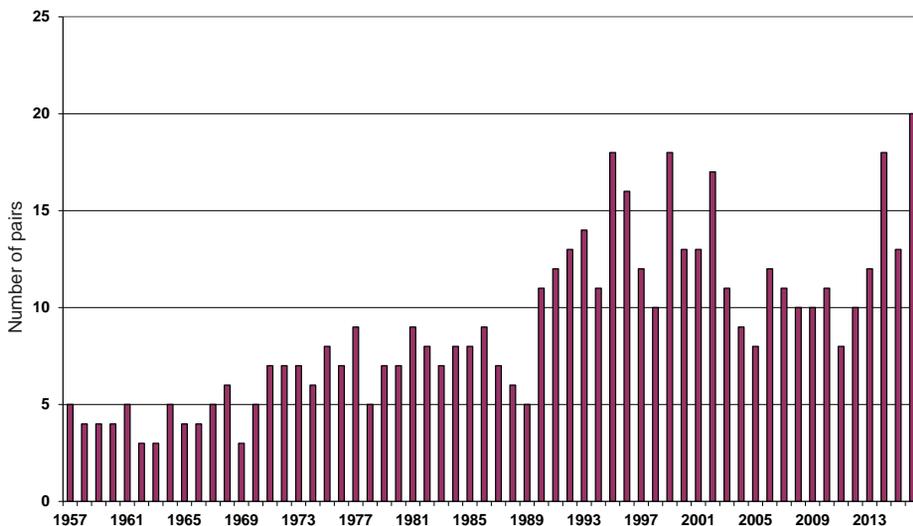


Figure 1. Number of Marsh Harrier pairs 1957–2016 in Kvismaren.

Breeding areas

In Figure 2, the number of nests by area from 2014–2016 is shown. The increase occurred primarily in Rysjön. In the discussion of the development of such changes in the annual report 2014 (Nielsen, 2015), we proposed a number of hypotheses on why eastern Kvismaren south of the canal has more or less been abandoned as a nesting site. We have no clear answer to this but it may involve the continuing conservation work in eastern Kvismaren. We also suspect that the presence of the White-tailed Sea-eagle having a nest SW to the lakes may have affected it. “Colony nesting” can be a protection against the White-tailed Eagle. The Marsh Harrier nests are concentrated as far away as possible from the White-tailed Eagle’s nest and its prime hunting grounds.

Study methods

First, we observed the nest building behaviour during the spring season between late April and early May, 2016, to identify potential nesting sites. Male birds usually establish their territories first when a female is observed to carrying nesting materials and dropping it down into the reed, we drew a sketch map highlighting

the nest. Later we visited the nest locations to confirm the location and count the number of eggs.

The nests were visited for the second time after the chicks were roughly 10–14 days old. Hatching success and chick survival was recorded and surviving chicks were ringed. We began observing the feeding and territorial behaviour of the female Marsh Harrier soon after ringing the chicks when they were roughly about three weeks old. Paths that females left their nests from and their potential foraging sites were drawn on maps. These observations were repeated 3–4 times for each nest over a 10-day period. Each observation lasted for approximately 2.5 hours. We conducted the observations in Åslasjön and Fågelsjön, as these two lakes had the highest concentration of nests.

Results

There were a total of nine confirmed nests in Åslasjön (AS01–06) and Fågelsjön (FA01–03). Nest AS04 failed to produce any eggs or was predated early and nest FA01 was found to be predated during our second round of nest visit. The offspring survival rate was quite high with an average of 75% (Table 1).

Table 1. Breeding results of confirmed Marsh Harrier nests in Åslasjön and Fågelsjön, Kvismaren.

Bo nr	Plats	Lagda ägg	Kläckta ägg	Ringmärkta ungar
AS01	Åslasjön	4	4	4
AS02	Åslasjön	4	4	4
AS03	Åslasjön	4	3	3
AS05	Åslasjön	4	4	2
AS06	Åslasjön	4	4	4
FA01	Fågelsjön	4	0	-
FA02	Fågelsjön	4	4	4
FA03	Fågelsjön	4	3	3
Total		32	26	24

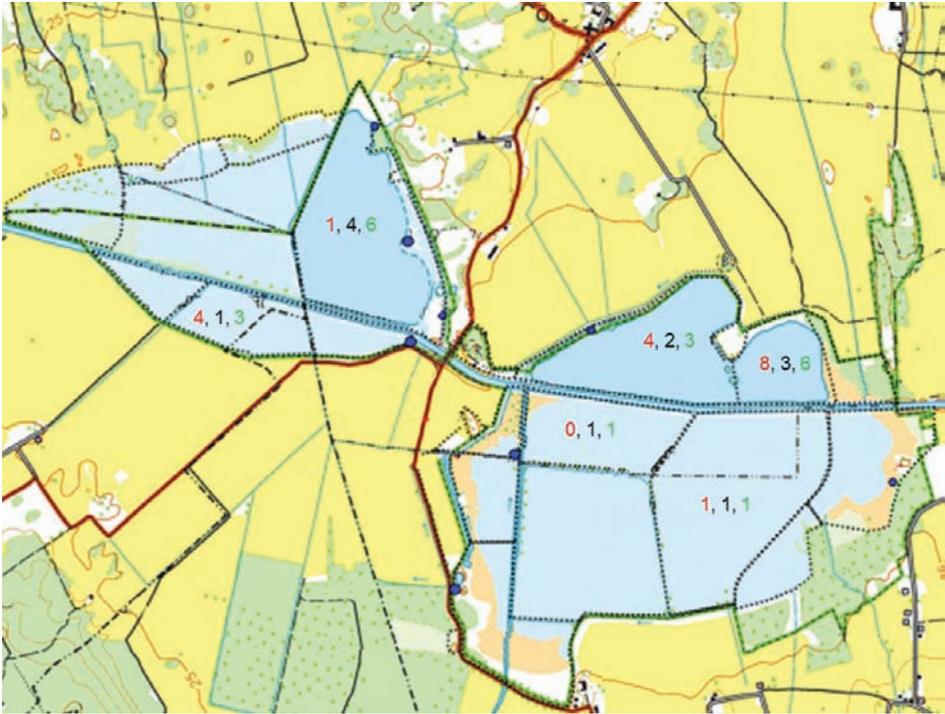


Figure 2. Number of nests per subarea in Kvismaren 2014 (red numbers), 2015 (black numbers) and 2016 (green numbers).

Discussion

From previous observations and studies (Sondell 1970, Sondell 2011), we know that female harriers generally guard their nests and rarely venture further than they could see any potential intruders approaching their nests. During later stage (3–4 weeks after chicks hatched) of the breeding season when chicks were large and more demanding for food, females may hunt, but usually within sight of their nests. However, our observations in 2016 showed that female harriers frequently fly far away from their nests for long periods of time (particularly females from nest FA03, AS05 and AS06 for over one hour). It is possible that the high nesting success

required both parents to hunt despite high abundance of prey. Also it is possible that the male were present guarding the nest when the females left for hunting, a behaviour known since earlier studies (Sondell 1970). This is particularly true towards later stage of the breeding season when the chicks were large and highly demanding.

Female harriers were observed to have core areas that they actively defend for and forage in (Figure 3). During the observation period, however, much wider and further areas were also observed of the females to travel to, presumably for foraging. We could not conclude whether this behaviour was constant over the entire breeding season in 2016 or not as



A male Marsh Harrier close to the nest. Photo: Magnus Friberg.

observations were not conducted during the early stage of the breeding season. Nonetheless, there was generally no or minimal overlap among core areas of the females despite the close distance between each nest. For example, the female from nest AS06 were generally using the area to the south the channel, and female from nest AS02 foraged to the east of Åslasjön. However, the hunting areas further afield had some degree of overlap between most of the females (Figure 3).

Unlike the intolerant behaviour of male harriers, females seemed to be able to co-exist in close proximity. For example, females from nests FA02 and FA03 were observed roughly 30% of the time to hunt close to each other over the farmlands to the north of Åslaholmen. The female from nest AS01 generally foraged over Åslasjön and further southwest, but on at least one occasion, the bird travelled northeast and foraged over the core area of the female from nest AS03. Females from nests AS02

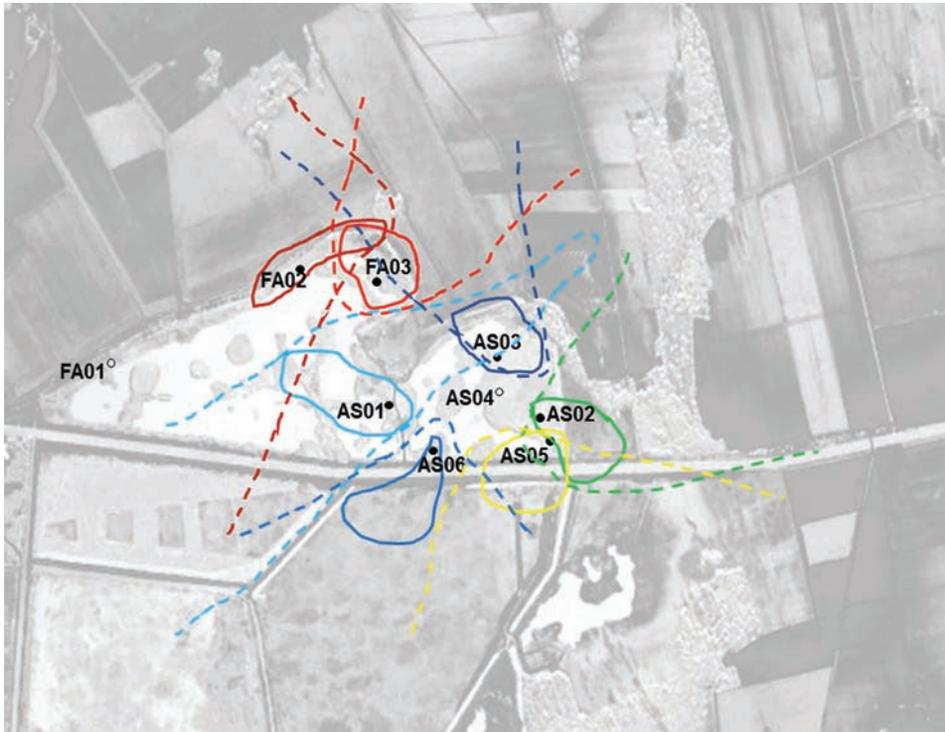


Figure 3. Foraging areas of the nesting female Marsh Harriers in Åsلاسjön and Fågelsjön, each colour represents a female from a numbered nest. Solid lines highlight the core areas that females hunt and defend territories; and the dotted lines indicate the areas that females were observed to be hunting from. Nest FA01 was predated and nest AS04 failed.

and AS05 were also observed to forage together in the southeast corner of Åsلاسjön!

References

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