

COLOUR-RINGING OF FENNOSCANDIAN PEREGRINES

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ABSTRACT

In 1976 a colour-ringing programme for the Peregrine Falcon was started in Fennoscandia. A total of 316 birds had been ringed with plastic and eloxated metal rings by September 1981. Twenty-six 'recoveries' were reported (some of the same bird seen more than once). Three and possibly four different females returned to ringing areas in northern Finland and nested successfully in their second year (third calendar year); some showed pronounced nest-site fidelity. Little new information was added on migration routes and wintering areas.

Plastic rings have a shorter survival time than metal rings. Coloured eloxated metal rings are preferable for long-term studies and such rings are now used in Sweden, West Germany, Switzerland and France. At least 1091 Peregrines were colour-ringed in Europe between 1970 and 1981.

INTRODUCTION

Migratory populations of Peregrines (*Falco peregrinus*) have declined in almost all breeding areas in the northern hemisphere, due to pesticide contamination (Hickey 1969; Ratcliffe 1980). In the Fennoscandian countries, the Peregrine used to be evenly distributed from southern Sweden to northern Norway, except in the mountain areas. Nowadays the remaining birds are found mainly in northern Sweden and Finland, and scattered along the Norwegian coast.

In 1976 a colour-ringing programme was initiated in Fennoscandia as a part of an IUCN-WWF programme for the Peregrine in Northwest Europe. The aim was to increase knowledge of migration routes and wintering areas and to study turnover rates, relationships and fidelity to breeding sites.

A combination of plastic colour-rings (provided by Prescott Ward, USA) and eloxated metal rings was used. For birds ringed in Finland, Norway and northern Sweden, one basic colour was used for plastic rings, and one other colour in the two following years for the metal rings. In this report preliminary results are given, along with a summary of other colour ringing programmes for Peregrines in Europe.

MATERIAL AND METHODS

Standard aluminium rings from different ringing centres have been used in the ordinary ringing work, in addition to plastic rings with a height of 17mm and an

Table 1: Number of Peregrines ringed, and colours used. Orange and black rings are plastic, the remainder metallic.

	1976-77			1978-79			1980-81				
	Black	Uncoloured	Orange	Blue	Uncoloured	Orange	Green	Red	Uncoloured	Orange	Black
Finland	45		45	84	13	97	104	4		102	
Sweden	4		4	15	9	24	11		15	11	15
Norway		4	4		4	4			4	4	
Total	49	4	53	99	26	125	115	4	19	117	15
Total ringed		53			125				138		

inside diameter of 10mm that fit the tarsi of both sexes. The plastic rings were cut from two-ply plastics and engraved with a letter and two digits, 7mm in height (Ward 1975). The letter/number could be read at approximately 100 metres with a 60-power spotting scope, while the background colour could be seen at a much greater distance, and thus the year class was more easily determined.

A total of 315 nestlings and one adult falcon was ringed between 1976 and 1981; 250 from Finland, 54 from Sweden and 12 from Norway (Table 1). These figures reflected national differences in population size, reproduction, accessibility of nests, and ringing effort. The largest population (*c.* 30-40 pairs) was in northern Finland (65°00'-68°00' N; 24°00'-28°00' E), with almost every pair ground-nesting in large bogs. Easy access to the nests and a high level of activity among ringers contributed to the high proportion of birds ringed. Although the population was only about four to five percent of its former size, significantly larger numbers of Peregrines were ringed during the 1970s than ever before (Saurola 1977).

In Norway and Sweden, every pair was cliff-breeding and ringing, especially in Norway, was complicated due to difficulty of access (Schei 1980).

Peregrines in southern Sweden were treated separately and only uncoloured metal and orange/black plastic rings were used. Uncoloured metal rings alone were used in other areas, rarely, when field workers lacked coloured rings.

RESULTS AND DISCUSSION

A total of 21 sightings (several of the same bird in successive years) and 5 recoveries of dead birds were reported up to September 1981 (Figure 1).

The two groups of dead and 'seen' birds combined provide a recovery rate of only three percent during the first year, which is low compared to a rate of twelve percent for birds ringed ($n = 1059$) in Sweden between 1925 and 1964. The figures are not quite comparable, as the latter group consisted of birds reported as killed or found dead, but they still suggest a lower 'recovery' rate. This might result from (a) poor visibility of colour-rings, (b) information on colour-ringing schemes not reaching field ornithologists, and (c) loss of colour-rings (see below). The concentration of observations in autumn-spring in southern Sweden reflected high awareness and efficient reporting by local ornithologists there. With one exception all birds observed in southern Sweden were from northern Fennoscandia.

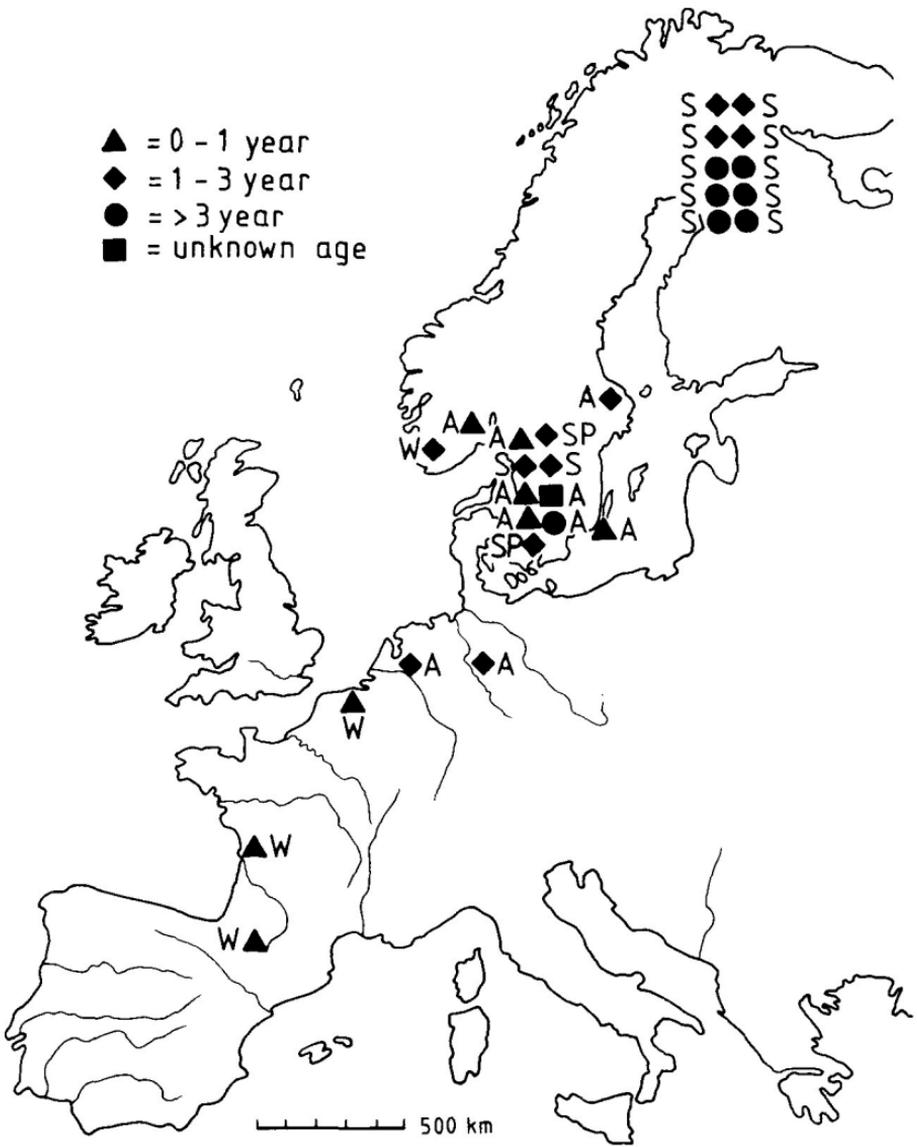


Figure 1: Reports of colour-ringed Fennoscandian Peregrine Falcons up until September 1981. W = Winter, months 11-12; SP = Spring, 3-4; S = Summer, 5-8; A = Autumn, 9-10.

Of the 21 sightings, the colour combination (both rings) was noted in 11. All other observations gave information for only one ring; in most cases it was possible to see only one leg. For one female the digits on the plastic ring were read from a photograph at a nest in northern Finland.

The relatively few observations of migrating and wintering Fennoscandian Peregrines revealed little new information compared to recoveries of birds ringed in the period 1914-70. However, they revealed interesting information for the breeding grounds in northern Finland. In 1979 two ringed females were noted

Table 2: Colour-ringing programmes for Peregrines in Europe.

Area	Year	Type of rings	Number of ringed birds
Sweden, Norway, Finland	1976–	Plastic and metal	316 (1976–81)
Baden-Württemberg, West Germany (Rockenbauch in litt. 1981)	1970–	Metal	417 (1970–81)
Other parts of West Germany (Rockenbauch in litt. 1981)	1975–	Plastic and metal	60–70 (1975–81) mostly captive produced and released
East Germany (Rockenbauch in litt. 1981)	1961–62	Plastic and metal	not more than 5
Switzerland, France (Juillard in litt. 1980)	1974–	Metal	76 (1974–81)
Scotland (Newton in litt. 1981)	1975–77	Plastic	217 (1975–77)

breeding. One (X 92, ringed as a nestling in 1977, 50km north of the breeding place) raised a brood of three young, and in 1980/81 returned to the same place and bred successfully. It was not possible to read the digits on the plastic ring of the other female, but the colour combination indicated that it was ringed in 1976 or 1977. In 1979 and 1980 she bred on the same bog and raised three and four young respectively. Two other females ringed as nestlings in 1978 were found breeding successfully in 1980 (two and three young raised). At one of the localities an unmarked female bred in 1979 and consequently a change of female occurred. In the summer of 1981 two birds that had been ringed in 1976/77 were found breeding. Thus at least these two plastic rings were intact four to five years later.

The ringed birds observed were all females, which was not surprising given the female's tendency to protect the nest. On a low-flying, attacking bird it was possible with ordinary binoculars to detect rings and read the colour-combination.

In summary, at least three and possibly four of the females nested successfully in their second year (third calendar year) and showed a pronounced nest site fidelity, as was usual in southern Scotland (Mearns & Newton, 1984).

In northern Sweden 24 nestlings were ringed in 1976–80 but none was subsequently observed on the breeding grounds. In southern Sweden one of 14 ringed birds was seen on the breeding grounds. It was ringed in 1978 and was seen in April 1980 at an old nest about 120km south of the ringing place.

Of various colour-ringing schemes for Peregrines in Europe (Table 2), the earliest started in southern West Germany in 1970 (Arbeitsgemeinschaft Wanderfalken Schutz), using coloured metal rings (Rockenbauch in litt. 1981). In Scotland more than 200 birds were ringed with plastic rings during the period 1975–77, but further ringing was abandoned due to high ring losses (Newton in litt. 1981).

Although identical colours have been used in many of the ringing areas, there is only limited risk of confusion with Fennoscandian birds on the wintering-grounds in Europe. Scottish birds are resident, as are adult falcons in central Europe. A certain overlap between birds from Fennoscandia and mainly young birds from southern West Germany and Switzerland can occur on wintering grounds in southern France and northern Spain.

LOSS OF RINGS

Plastic rings have a shorter life than metal rings and are therefore of restricted value for long term studies. Plastic rings were sometimes weakened when being opened to fit on the tarsus of the young. There was also variation in the method of

sealing the rings as many different people were involved in the ringing scheme. In some cases the rings were not glued at all: it was unknown whether such rings lasted less long than those which were glued. Two birds ringed in 1978 had both lost their glued plastic rings when observed two years later, and in a Finnish nest it was found that one of the young had broken its ring within a week of ringing.

To study ring loss we also ringed 35 captive falcons. The oldest rings were, in September 1981, six ($n = 2$) and five ($n = 5$) years old and none has been lost. However, rings placed on captive birds probably have a better chance of survival than those placed on wild birds. Prescott Ward (in litt. 1979) mentioned that the plastic rings he provided for different ringing schemes did not function as hoped, as most seemed to disappear within two or three years. Ian Newton (in litt. 1981) had a similar unsatisfactory experience with the same type of rings, reporting ring losses within the first year. Plastic rings thus seem to have many disadvantages, and a system of coloured metal rings is preferable for long-term studies.

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