Birds of Prey Bulletin No 4: (1991)

TRENDS, STATUS AND MANAGEMENT OF THE WHITE-TAILED SEA EAGLE *Haliaeetus albicilla* IN POLAND

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ABSTRACT

The figures given to date for the Polish population of *Haliaeetus albicilla* have been greatly underestimated. New, much fuller data are presented. In the years 1981-1988 at least 202 pairs nested in Poland. There are no exact data from the whole country, but the population is estimated at 210-240 pairs. The average productivity was 0.93. In winter up to 275 eagles were recorded, mostly near rivers. Factors determining the increase in the population, and those threatening it, are enumerated.

INTRODUCTION

The status of the White-tailed Sea Eagle *Haliaeetus albicilla* has been given as vulnerable by King (1981). Estimates of the total breeding population vary, mainly due to the lack of precise data on what is probably the largest population, which is found in the Soviet Union. Another reason is the steady increase in the population recorded recently in a number of European countries. According to the figures given in Gensbol (1986), the European population of the White-tailed Sea Eagle amounts to 1,350-1,425 pairs. The largest occurs in Norway - 800 pairs (Acklam 1985) - although in the years 1956-1960 it was estimated at only 300-350 pairs (Willgohs 1977). In the Soviet Union there may be some 500 pairs nesting in the European region and 1,500 in the Asian region (Galushin 1984).

General works published to date (Glutz *et al.* 1971; Cramp & Simmons 1980; Fischer 1982; Love 1983) gave the greatly underestimated figures of

some 40-50 pairs in Poland. These authors based their estimates on incomplete data from Polish ornithologists, and for some parts of the country (e.g. Mazuria) even on old German figures from before 1939. A turning-point in the recognition of the actual state of the *Haliaeetus albicilla* population was the setting up of the Committee for the Protection of Eagles (CPE) in 1981. This was formed on the initiative of W. Król, who chaired it until 1985. He also published the first report on the results of the CPE's activities (Król 1983). The findings of CPE members throughout the country raised the estimate of breeding pairs to 120-140 (Król, in press).

Over the past three years a number of intensive studies have been carried out in Poland, but their results are little known to members of the WWGBP, who usually do not understand Polish. This paper seeks to fill this gap by reporting the latest findings. The new status of *Haliaeetus albicilla* in Poland and many other countries allows a more optimistic view of the future of this species.

METHODS

Since 1981 all available data on the occurrence of the White-tailed Sea Eagle in Poland have been collected. A file on all localities was opened, which included data from the literature, unpublished information from bird-watchers and the results of a questionnaire sent out by W. Król to all Forest Districts in the country. Data from these three sources were then verified in the field by CPE members.

In 1984 the Ministry of Forestry issued new regulations introducing 200m and 500m protected zones around nests of ten rare species of birds, mostly raptors. This brought an influx of fresh information about nests from foresters, also verified by CPE members.

An effort was made to check each nest twice during the breeding season, as recommended by Postupalsky (1974). The first check, in March-April, was to establish whether there were eagles in a territory and whether they occupied their nest. The second check, between mid-June and mid-July, was to record the breeding results and to count fledged young. These two checks were made from the ground, but a small group of nests, some 10-15%, were additionally checked in May or early June, and this further involved climbing up to ring, weigh and measure the eaglets.

White-tailed Sea Eagles were also counted in winter. Since 1985 a country-wide count of wintering waterfowl has been undertaken in January. This covers the principal rivers (Vistula, Odra and Warta) together with their tributaries, lakes, canals and the sea-shore (Kot *et al.* 1987).

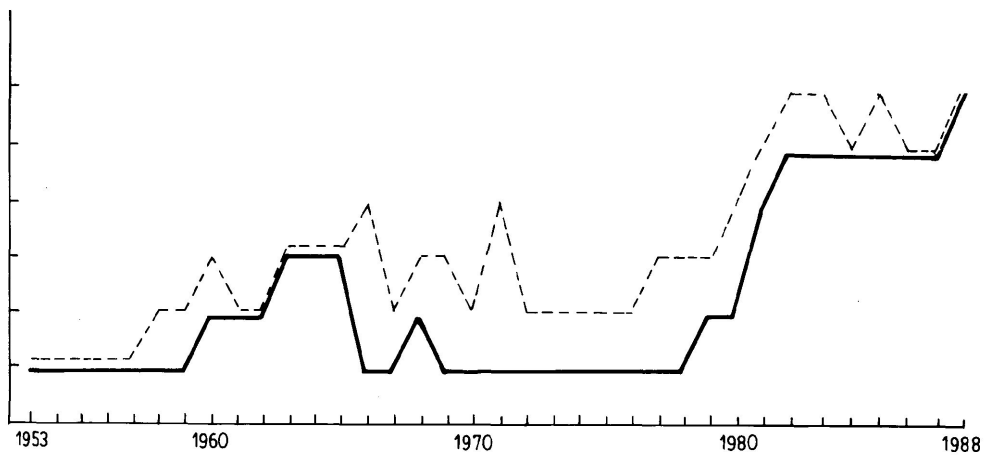
All the costs involved in these studies were met from private funds by CPE members, mostly students.

RESULTS

Fieldwork was carried out during eight breeding seasons from 1981 to 1988, when data from bird-watchers, foresters and the literature were verified. At least 202 pairs were located, with breeding confirmed for 155 pairs, plus 29 pairs probably and 18 possibly breeding. The figure 202 was derived from combined data from the eight years, including records of a pair's single nesting as well as those of all eight successive seasons. In cases where two localities were reported in different years at a short distance apart (usually about 5km, but sometimes up to 10km), it was assumed that these referred to one and the same pair. On the other hand, however, localities of different pairs are known from the Szczecin Bay area that are only 280m distant from each other. Twenty reports of occurrence have not as yet been verified in the field.

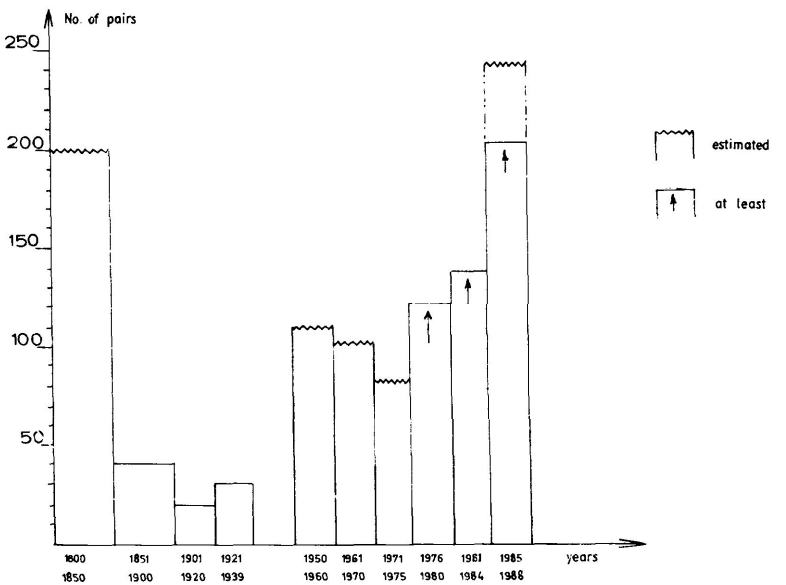
Each year new nests are discovered. This does not mean that the number of pairs increases, but that we improve our knowledge. For some areas we have exact data. Thus, in the Barycz river valley (Lower Silesia) the White-tailed Sea Eagle became extinct in the 19th century. Nesting was found to be resumed in 1953 and the number of pairs gradually grew to six. Details of the change in population size are presented in Figure 1, following Mrugasiewicz (1984 and pers. comm.).

Figure 1: Number of occupied territories (broken line) and number of breeding pairs (solid line) of *Haliaeetus albicilla* in 1953 - 1988. (Data from Mrugasiewicz 1984 and personal communication).



From Mazuria (NE Poland), Tischler (1941) reported 2-3 breeding pairs, while today there are at least 58 pairs, and estimates go even as high as 66. From Pomerania (NW Poland), Banzhaf (1937) recorded 10 pairs, whilst at least 63 (and estimated 75) pairs nest there now. In Wielkopolska and Ziemia Lubuska (W Poland), there were only 4 pairs in the years 1910-1922 (Schalow 1919; Hammling 1933;Weyrich 1926), while 42 pairs are known here at present. Thus the increase in the size of the population in all the regions of the country is significant. Figure 2 presents a hypothetical pattern of changes in the numbers of *Haliaeetus albicilla* in Poland on the basis of Król (in press), Mizera (in press) and newly collected data.

Figure 2 Population size of *Haliaeetus albicilla* breeding in Poland in 1800 - 1988. (Data from Król, in press and Mizera, in press).



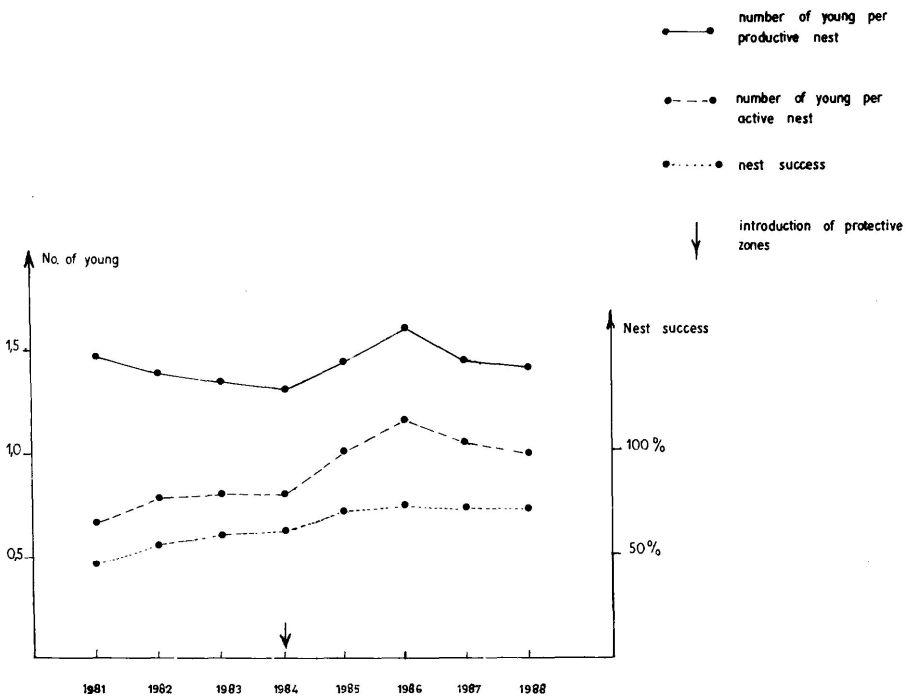
The Polish population boasts not only a large number of pairs, but also high reproduction rates. The breeding results for 1987 and 1988 are presented in Table 1. Detailed data from the preceding years are presented in Król (in press) and Mizera (in press). The index thought to characterise best the status of a population is the number of fledged young per territory. In the years 1981-1988 this ranged from 0.68 to 1.17, giving an average of 0.93. Detailed data are presented in Figure 3.

Table 1. Productivity of the White-tailed Sea Eagle *Haliaeetus albicilla* in Poland

	1987	1988
No. of checked territories	150	160
No. of breeding sites with pairs	114	139
No. of breeding sites with one adult	12	12
No. of occupied breeding sites with known outcome	86	98
No. of nests with fledged young	62	70
No. of non-productive occupied nests	24	28
Nest success (%)	72.1	71.4
No. of fledged young	89	99
No. of young/productive nest	1.44	1.41
No. of young/occupied breeding site	1.03	1.01

An inventory of White-tailed Sea Eagles in winter was made while counting wintering waterfowl. On three successive counts in January 1985, 1986 and 1987, the following numbers of eagles were recorded: 207, 275 and 216 (Kot *et al.* 1987; Dombrowski (pers. comm.)). Eagles concentrated mainly near rivers, where they found abundant food resources in the form of wintering waterfowl, for which the respective figures in the three years were 264,155, 503,237, and 263,276. A majority of eagles, 75-85%, were found to winter in the western part of the country. Their most important wintering quarters are the Szczecin Bay, the Lower and Upper Odra, the Lower Vistula and the Lower Warta (Kot *et al.* 1987).

Figure 3 Productivity of *Haliaeetus albicilla* in Poland, 1981 - 1988.



DISCUSSION

These new data from Poland introduce a significant correction into the estimated size of the European population of the White-tailed Sea Eagle. The present figure of at least 202 pairs puts Poland in the first place among the Baltic states. Considering our incomplete knowledge of NW and NE parts of Poland, it can be estimated that there are 210-240 pairs nesting throughout the country (Mizera, in press). Unfortunately, these two poorly-known regions happen to be colonised by many more eagles than bird-watchers. Still, each year new nests are discovered, which gives hope of this gap being eventually filled.

It is generally reckoned that to keep a population stable, White-tailed Sea Eagles must produce 0.70 young per breeding pair (Gensbol 1984). Out of the populations studied, only in Norway and Poland did the production of young exceed 0.70. In all the other Baltic states this index was much lower in recent years: the GDR - 0.36, Sweden - 0.46, Finland - 0.55, Latvia - 0.67 (Oehme & Dornbusch, Helander, Koivusaari, proceedings of the Baltic Birds-5 conference, Riga 1987; Randla and Tammur 1987). The results

obtained in Poland are very high, 0.68-1.17, i.e. 0.93 on average. Even so, the numbers of fledged young were probably underestimated by observers for two reasons. Firstly, hatches were checked almost exclusively from the ground; secondly, in a number of cases informants reported at least one eaglet, which we interpreted as "only one eaglet".

Assuming that there are 200 pairs nesting in Poland, the surplus of young produced in the years 1981-1988 can be calculated to have been:

(0.93 - 0.70) x 200 pairs = 46 eagles x 8 years = 368 eagles.

This figure may account for the increase in the breeding populations in the GDR and other Baltic states in spite of low reproduction rates in these countries in recent years.

Several factors have combined to produce such a numerous population and facilitate the survival of so many young:

1. In 1922 the White-tailed Sea Eagle was granted legal protection.

2. In 1984 200m and 500m protected zones around nests were established to ensure eagles the tranquillity in which to incubate eggs and rear chicks.

3. The nesting and hunting grounds of most pairs are situated inland, near fresh water and fishponds. Only about 15% of the population nest on the Baltic coast.

4. The abundant food resources during the winter season, critical especially for one-year-old birds, allow losses in this age group to be reduced. Adults are equally well nourished. This improves their reproduction results, as has been shown by Helander in Sweden (1985, 1985a).

5. A change in behaviour can be observed. Some pairs show a decreasing degree of vulnerability to human influence. They nest in the vicinity of roads and railway lines as well as villages. They regularly hunt in fishponds ignoring the presence of people; they even take poultry on the outskirts of villages. One pair has been found nesting some 400m from village buildings.

In spite of such favourable results, the population of *Haliaeetus albicilla* in Poland remains endangered. A number of factors limit its development and affect its health. Most important is the degradation of the natural environment. The wasteful management of forests has brought about a drastic decrease in the stands of trees suitable for nesting (mainly pines over 100 years old). For instance, in the estimate of Mrugasiewicz (1984), in the Barycz valley the number of eligible trees has decreased 20-fold. What may help offset the felling of nest sites is the 1984 act ensuring them legal protection.

However, there are alarming forecasts that by the end of the 20th century most pinewoods in Poland will have died as a result of the pollution of air with SO2 (acid rain). The first signs of forest decline are already visible in the Szczecin Bay area, where large portions of forests are withering due to the activity of the Police factory. And this is an area of the greatest nest concentration in Central Europe.

Another factor is the poisoning of birds with organochlorine pesticides and heavy metals. The analysis of dead eagles has revealed high levels of these poisons in their bodies. In some cases they may have been the direct cause of a bird's death (Falandysz 1984; Falandysz & Szefer 1983). At the same time big differences were registered in the levels of poisoning of birds: low inland and high near the sea and Szczecin Bay (Falandysz *et al.* 1988; Falandysz & Mizera 1989). The high level of pollution of the Odra river and the Baltic results in low reproduction rates. Thus, the productivity of 6 pairs in 1977-1978 amounted to 0.17 (Zyska 1978), as against 0.42 of 12 pairs in 1982 (Karczmarczyk 1983). Surprisingly high figures were obtained in 1988: the breeding success of 17 pairs from the Szczecin Bay area was 76% and their productivity reached 0.88! The 1988 figures are astonishing because there are no grounds for believing that the pollution of the Odra river and Szczecin Bay has decreased in any degree. Rather, there is much evidence to the contrary.

Still another significant limiting factor is poaching. In the years 1953-1983 15 eagles were shot dead in the Barycz valley alone (Mrugasiewicz 1984). In 1987-1988 19 White-tailed Sea Eagles were found dead, mostly shot, or probably shot. Some 30-40 birds are estimated to die in this way every year.

MANAGEMENT

Thirteen artificial nests have been built, of which four have been occupied by Sea Eagles at least once. Two others, which were threatened with collapse, have been strengthened. Wounded and weak birds are treated in the Research Station of the Polish Hunting Association. Thus far eight eagles have been cured and returned to the wild (Z. Pielowski, pers. comm.). Those not fit for freedom have been transferred to the Poznan Zoo to form a basis for a captive breeding programme. There are two pairs nesting in the zoo now, but they have not as yet managed to produce offspring.

The most important task of the CPE is enforcing upon foresters the regulation protecting the 200m and 500m zones around nests. So far the collaboration is good enough to ensure most nesting sites actual protection, but there are still cases of eagles abandoning their broods due to nearby forestry activity.

Also, several poles with artificial nests should be set up in the Szczecin Bay area. Its eagle population is especially endangered. In an area inhabited by

five pairs most old pines have withered and almost all the nests of these birds are situated on already dead trees.

Since 1981 Poland has been taking part in the colour-ringing programme. So far we have ringed 73 eaglets, including 9 in 1988.

While the present state of the White-tailed Sea Eagle population is surprisingly good, the level of degradation of the natural environment cannot but raise well-grounded fears for the future of this magnificent bird.

ACKNOWLEDGEMENTS

We would like to express our gratitude to all the members of the Committee for the Protection of Eagles who were involved in the collection of data, as well as to all the foresters who gave us assistance in field work. Finally, we are grateful to Ms M. Kawinska for the translation of this article.

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