

FACTORS AFFECTING BREEDING LOSSES OF CORMORANT PHALACROCORAX CARBO AND GREY HERON ARDEA CINEREA IN KĄTY RYBACKIE COLONY

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Great Cormorant and Grey Heron breed side by side in Kąty Rybackie colony. Therefore subject to the same/identical weather and depend, at least partly, on the same food base. The aim of this study was to investigate the factors which affect the mortality rate of chicks of both species and assess the importance of those factors on the loss of brood among two bird species with different ecology, ethology and breeding biology. Data on the number of pairs, breeding phenology and breeding losses at incubation, hatching and chicks stage were collected in 2005-2010, at different parts of the colony. Nestlings fallen out from nests (dead or alive) were individually marked, aged according to measurements and plumage development and sexed using molecular analysis. Weather conditions were measured by weather station placed near the colony.

The main factor affecting beginning of breeding for both species is the disappearance of ice cover on Vistula Lagoon. Mortality of chicks for both species increased during extreme weather conditions and prolonged bad weather such as high winds and storms, causing chicks and nest to fall down, and long-lasting rainfall, limiting food availability for adult birds. Mortality of cormorant chicks can also increase along with long periods with strong sunlight. Cormorant chicks die significantly more often within the first three weeks of life, the heron chicks - after the completion of the third week of life.

For both species relative timing of breeding in the season significantly affect the probability of the breeding losses and is more important than the date of hatching. Broods hatched later in the season had higher rate of chicks losses, regardless of the date of commencement of breeding and their synchronization. For both species, despite the difference in the degree of sexual dimorphism, we observed sexually biased selection: heron chicks - males die significantly more frequently, cormorant chicks die significantly more frequently if they are males from later broods.

With the increase in the number of nesting cormorants in the colony, the average size of brood of this species decreased. Along with the decrease in the number of nesting herons, the average size of brood of this species decreased. The greater the losses were in the broods of herons, the less breeding birds were in the next season, there was no such relationship for the cormorant. The decrease in number of pairs in the cormorant colony was probably influenced

by availability of food. The decrease in the number of heron pairs was probably influenced by the increased pressure from human (tourism) and predation (White-tailed eagle).

Changes in the number of breeding pairs of both species in the Kąty Rybackie colony are not significantly correlated.