

## Investigation and protection of waterfowl in Czechoslovakia

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UNTIL recently, no systematic investigation of waterfowl has been carried out by either professional or amateur ornithologists in Czechoslovakia. In the thirties of this century, ducks captured in the duck-decoy near Ladná (Rampersdorf — southern Moravia) were ringed; some of the results thus obtained were included in the "*Atlas des Vogelzuges*" by Schüz and Weigold (1931, and later addenda), and treated in detail by Legler (1936). At that same time, Farský analysed the stomach contents of ducks (mainly Mallard *Anas platyrhynchos*); however, no results have been published so far.

Certain further studies concerned with waterfowl were started after World War II. Veselovský (1951, 1952, 1953) treated, in a series of papers, of the postnatal development of different species of ducks, carried out a comparison of the ontogenesis of the genera *Aythya* and *Anas*, and analysed the diving movements in the genus *Aythya*. Also he gathered up the contemporary hunters' opinions and knowledge on waterfowl in a manual on waterfowl management (1954). From 1948 to 1957, Hudec (1960) studied passage migrations of waterfowl in water basins of various types in Moravia from the biocoenological point of view, thus carrying out an ecological analysis of resting-places of migrating water birds including the ducks. The numerical data, providing evidence for this paper of a rather general character, were published in a separate paper, together with the censuses made by Dr. Z. Kux (Kux and Hudec, 1956). The results of synchronous censuses of ducks obtained during their spring passage migration in ponds along Odra River and March River—the Odra-Danube way—have not yet been published (Hudec and Svoboda). Ferianc (1955) studied the passage migration of waterfowl in the inundation region of eastern Slovakia in the environs of Senné. Feriancová-Masárová (1958, 1959, 1962) contributed to the knowledge of ecology and occurrence of waterfowl in rice fields in southern Slovakia and in the Orava Dam basin. Kux (1950) studied in detail the phenology and breeding of the Greylag Goose *Anser anser* and the Red-crested Pochard *Netta rufina* in southern Moravia; and Figala and Hanák (1957) that of the Greylag in the Velký Tisý reserve in southern Bohemia. Experiments with artificial breeding sites of ducks were carried out by Hanzák in the research centre of the Czechoslovak Ornithological Society in that reserve, but no results have been published so far. Černý (1960) has followed, for a period of nearly twenty years, the population dynamics of the Tufted Duck *Aythya fuligula* in the ponds near Blatná (south-western Bohemia). Hachler (1957, 1958) studied the numbers of waterfowl by regular counts in the manner of the international wildfowl census on ponds near Lednice in southern Moravia and (1959) the passage and hibernation of geese in the same locality. Further short reports and remarks have dealt chiefly with the distribution of various species of ducks in Czechoslovakia.

Since 1959, investigations on waterfowl in Czechoslovakia have been organised by the Laboratory of Vertebrate Zoology, CAS, Brno (Dr. F. Balát, Ing. Č. Folk, Ing. J. Havlín, Dr. K. Hudec, Dr. M. Klíma) in collaboration with other institutions or individual ornithologists. The present status of investigations is roughly as follows:

*Distribution in Czechoslovakia* was studied in the western part of the state during 1960-1962; in the years to come, supplementary studies on distribution will be carried out in the eastern part of Czechoslovakia.

*Breeding* presents, at the time being, the most thoroughly studied part of the bionomics of the waterfowl. A part of the data obtained was evaluated for the appropriate volume of the "*Fauna of Czechoslovakia—Birds*", which is in preparation. Since 1959 breeding has been studied in detail in various habitats in the lowlands of southern Moravia and the highlands of western Moravia. Černý continues to study the population dynamics of ducks in ponds in southern Bohemia; Formánek is carrying out a detailed study on the breeding of waterfowl in several ponds in southern Bohemia.

*Migrations.* Systematical visual observations are being made in only a few localities (Prague: Urbánek and Král; Lednice: Bauer, etc.). Little ringing of either adult ducks or ducklings has yet been done, as the duck-decoys are inaccessible. In the past few years about 500 moulting ducks and 50 Greylags, captured in light transportable nets, have been ringed each year. Wing marks of the Swedish organisation "Svenska Jägareförbundet" and of the Vogelwarte Radolfzell are used to mark some 200 ducklings a year.

In recent years, censuses have been made of migrating and wintering geese in southern Moravia. In the winter of 1962-63, the censuses are being made, in collaboration with Hungarian ornithologists, in the entire Czechoslovakian and Hungarian part of the Danube. Wintering of ducks in southern Moravia has been regularly studied for several years.

*Food* of the Mallard is being studied by Toufar and Janda in the Forestry and Gamekeeping Research Institute, at Zbraslav n. Vlt. Also, investigations on food of the remaining species of our ducks are being started.

*Morphology* of waterfowl has been little studied so far. Klíma is studying the development of the sternum in the Mallard during ontogenesis; Janda, the development of gonads. In all species of ducks, detailed studies are made on changes in body weight during the year.

*Ethology* of waterfowl has likewise gained little attention so far. At present, a study on diurnal activity of different species and ethology of foraging is being started.

*Parasitology* of waterfowl is being studied in detail in several institutions (Institute of Virology, CAS, Bratislava; Institute of Parasitology, CAS, Prague; Institute of Helminthology, SAS, Košice) concerned with Helminths, ectoparasites, blood parasites including viruses, and nidicolous parasites. Especial attention is paid to the relations (chiefly epizootologic) between waterfowl and to large-scale breeding of domestic ducks in ponds.

*Waterfowl hunting.* Problems being studied include the effectiveness of the present ways of hunting, artificial hatching of duck eggs and releasing of ducklings in nature.

*Protection of waterfowl in Czechoslovakia* is chiefly the problem of protecting their habitats. A great majority of waters suitable to waterfowl are artificial ponds, chiefly utilised in freshwater fisheries, as bathing resorts, etc. For this reason, ecology of waterfowl is being investigated as affected by the various ways of utilising these ponds. The ducks are protected on artificial reservoirs; however large these waters may be, they are not very suitable habitats for ducks and almost valueless as breeding habitats. In the lowland

regions of southern Moravia and south and south-eastern Slovakia there are, in places, habitats suitable for the occurrence and breeding of waterfowl, including swamps, bogs and dead branches of rivers. However, the present extensive regulation of water regime in these regions is gradually reducing the natural opportunities for breeding and protection of waterfowl so that the latter are often confined only to the areas of natural reserves, few in numbers and small in acreage.

The direct legal protection of waterfowl and the regulation of hunting seasons (for ducks, 16th August to 31st December; for geese, 1st October to 31st December) are quite satisfactory. It is permitted to shoot geese, Mallard, Teal, Garganey and Pochard; the remaining species are protected.

### References

- ČERNÝ, W. 1960. The population dynamics of the Tufted Ducks and Common Pochards in Czechoslovakia. *Proc. First Soviet All-Union Orn. Conference*: 233-40. (In Russian).
- FERIANC, O. 1955. Das Inundationsgebiet bei der Ortschaft Senné (Bezirk Velké Kapusany) als notwendige Migrationslokalität der Wasservögel durch die Slowakei. *Práce II. sekce SAV, série biol.* 1(4) : 1-32. (In Slovakian with German Summary).
- FERIANCOVÁ-MASÁROVÁ, Z. 1958. Zur Ökologie der Vögel zweier slowakischen Reisfelder. *Zoologické listy* 7(3) : 249-60. (In Slovakian with German Summary).
- FERIANCOVÁ-MASÁROVÁ, Z. 1959. Vogelfauna der Reisfelder in der Slowakei *Sylvia* 16: 57-78. (In Slovakian with German Summary).
- FERIANCOVÁ-MASÁROVÁ, Z. 1962. Bedeutung der Stausperre Oravská Priehrada für den Zug und das Nisten der Wasservögel. *Biologia* 17(5) : 340-54. (In Slovakian with German Summary).
- FIGALA, J. & HANÁK, V. 1957. Zum Nisten der Graugans (*Anser anser* L.) im Naturschutzgebiet "Velký Tisý". *Ochrana přírody* 12(6) : 174-77. (In Czech with German Summary).
- HACHLER, E. M. 1957. The numbers of some water-birds in the ponds of Lednice in the terms of international counts. *Ochrana přírody* 12 : 59-61. (In Czech).
- HACHLER, E. M. 1958. Über den Durchzug einiger nordischen Tauchenten (Aythyinae) durch das Teichgebiet von Lednice (Südmähren). *Ochrana přírody* 13(3) : 65-8. (In Czech with German Summary).
- HACHLER, E. M. 1959. Vom Zug der Wildgänse im Teichgebiet von Lednice. *Sylvia* 16 : 113-27. (In Czech with German Summary).
- HUDEC, K. 1960. Der Vogelzug auf den Wasserbecken Mährens. *Práce Brněnské základny ČSAV* 32(5) : 157-216. (In Czech with German Summary).
- KUX, Z. 1950. The Ducks *Netta rufina* (Pallas) and the Big Geese *Anser anser* (L.) on South-Moravian ponds. *Časopis Moravského musea v Brně* 35 : 1-28. (In Czech with English Summary).
- KUX, Z. & HUDEC, K. 1956. Der Durchzug der Enten (Anatinae) auf den südmährischen und schlesischen Teichen. *Časopis Moravského musea v Brně* 41 : 113-38. (In Czech with German Summary).
- LEGLER, F. 1936. Beringungsergebnisse südmährischer Enten. *Lotos* 84 : 1-8. (In German).
- VESELOVSKÝ, Z. 1951. The postembryonic development of the Tufted Duck. *Sylvia* 13(1) : 1-19. (In Czech with English Summary).
- VESELOVSKÝ, Z. 1952. Schwimmbewegungen der Tauchenten (Gatt. *Aythya*). *Věstník Čs. zoologické společnosti v Praze* 16(3-4) : 354-76. (In German with Czech Summary).
- VESELOVSKÝ, Z. 1953. Postembryonale Entwicklung unserer Wildenten. *Sylvia* 14 : 36-73. (In Czech with German Summary).
- VESELOVSKÝ, Z. 1954. *Myslivec hospodářství na vodě* (Waterfowl Management). P. 1-72. Státní zemědělské nakladatelství, Prague. (In Czech).