

**XXIII. PEAK NUMBERS OF GEESE AND CRANES ON AUTUMN
MIGRATION IN THE KARDOSKÚT NATURE RESERVE,
SOUTHEAST HUNGARY**

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In Hungary, migration of geese and cranes depends heavily on weather and food conditions. This causes fluctuations in the course of migration and makes quantitative estimates difficult. Both IWRB monthly counts (*Sterbetz, 1977*) and counts made on successive days (*Lebret et al., in press*) provide results which occasionally are not of universal validity. If we wish to get a more exact trend, we should evaluate the peak counts over a longer time scale.

Here I present peak counts over 30 years at the Kardoskút Nature Reserve (46°30'N; 20°28'E). I consider the peak numbers taken from the autumn period (September–December) to be characteristic of the area. No similar evaluation is possible from spring migration which is too concentrated in time.

70% of geese and all cranes migrating through Hungary will appear in the eastern part of the country, the steppe zone. Here one can find saline steppe patches, natron lakes and, more recently, fish pond systems which attract migrating birds. Large-scale maize farming provides a rich food source by split crop which is another factor attracting birds (*Sterbetz, 1975, 1979/a, 1979/b*).

During the last 20 years, the Kardoskút Nature Reserve has been the most important gathering site for geese and cranes in Hungary. The largest numbers were observed here. Birds on their way to the Balkans gather here and stay till the winter forces them to leave for more southerly winter quarters. This peak reflects optimal habitat conditions for these birds. The recent increase after 1970 reflects the rich food source provided by the growing acreages of large-scale maize farming.

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Table XXIII/1.

Peak numbers of geese and cranes

Year	<i>A. anser</i>	<i>A. fabalis</i>	<i>A. albifrons</i>	<i>A. erythropus</i>	<i>B. ruficollis</i>	<i>G. grus</i>
1951	22	1200	9 000	3 400		450
1952	—	3200	11 000	812		311
1953	12	1500	10 000	240		400
1954	3	3000	12 000	500		1 200
1955	35	1200	18 000	11 000		800
1956	6	4500	11 000	300		500
1957	49	3300	16 000	140		900
1958	2	650	22 000	42		650
1959	14	1400	15 000	14		1 000
1960	150	1200	10 000	8		2 000
1961	61	800	14 000	150		1 500
1962	20	1100	25 000	2 000		800
1963	12	850	19 000	1 200		1 300
1964	4	2000	20 000	120		2 000
1965	38	2000	15 000	560		1 300
1966	120	4000	30 000	2 000	5	1 226
1967	50	6000	20 000	1 035		508
1968	1	4000	20 000	49		560
1969	23	8000	15 000	3 000		2 000
1970	—	3000	50 000	2 000	11	1 800
1971	42	6000	25 000	2 000		1 800
1972	8	2000	45 000	5 000	1	2 067
1973	—	1000	50 000	1 000		750
1974	—	88	70 000	2 000	10	4 000
1975	140	2000	10 000	500		5 000
1976	—	150	40 000	300		10 000
1977	48	39	30 000	150		10 000
1978	20	140	35 000	1 250	41	3 000
1979	250	119	60 000	1 300	15	8 000
1980	36	1500	80 000	22	52	4 000

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XXIV. GEESE IN YUGOSLAVIA

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Introduction

Obvious decreasing in number of all wild goose species in Middle and Southern Europa is also noted in the area of Yugoslavia. This fact points at the necessity of details research on ecology of these imperilled species if we want to protect them successfully.

Methods

This contribution is made according to author's own researches and literature data. Since all the literature referring to this area was not available to the author, it is possible that all founds of rare goose species are not included here.

Results and discussion

Till now eight wild goose species are noted on the territory of Yugoslavia: Barnacle Goose [*Branta leucopsis* (Bechstein, 1803)], Brent Goose [*Branta bernicla* (L., 1758)], Red-breasted Goose [*Branta ruficollis* (Pallas, 1769)], Greylag Goose [*Anser anser* (L., 1758)], White-fronted Goose [*Anser albifrons* (Scopoli, 1769)], Lesser White-fronted Goose [*Anser erythropus* (L., 1758)], Bean Goose [*Anser fabalis* (Latham, 1787)] and Pink-footed Goose [*Anser brachyrhynchus* (Ballion, 1833)]. Other species, such as Bar-headed Goose [*Anser indicus* (Latham, 1790)] and Snow Goose [*Anser caerulescens* (L., 1758)] have not yet been observed.

Barnacle Goose [*Branta leucopsis* (Bechstein, 1803)] is rarity in Yugoslavia. Till now, only one specimen is known, shot in November 1953 at Lukino Selo (9), Banat, northeastern Yugoslavia (Csornai, 1957). Landbek (1842) has noted it for Srem (8), but without other data (Figure 1).

Brent Goose [*Branta bernicla* (L., 1758)] is also a rare bird. It is evidenced with certainty on three localities, on the River Cetina (1), where was caught on the 7th January 1899 (Rossler, 1902), at Lonjsko Polje (2) where was shot on the 23rd December 1906 (Rucner, 1970) and at Uzdin (3), where was found on the 15th October 1979 (Dević, 1980). According to Csernel (1899) this bird was caught in winter 1845/46 in the surroundings of Novi Sad (7), but without arguments. With certainty it was seen on the 16th December 1933, near Beograd (4) (Matvejev, 1950) and on the 13th January 1958 on Ludas Lake (5) (Mikuska, 1968). Except these findings, Landbek (1842) noted the Brent Goose for Srem (10), Kolumbatović (1880–1904) for Dalmatia and Reiser

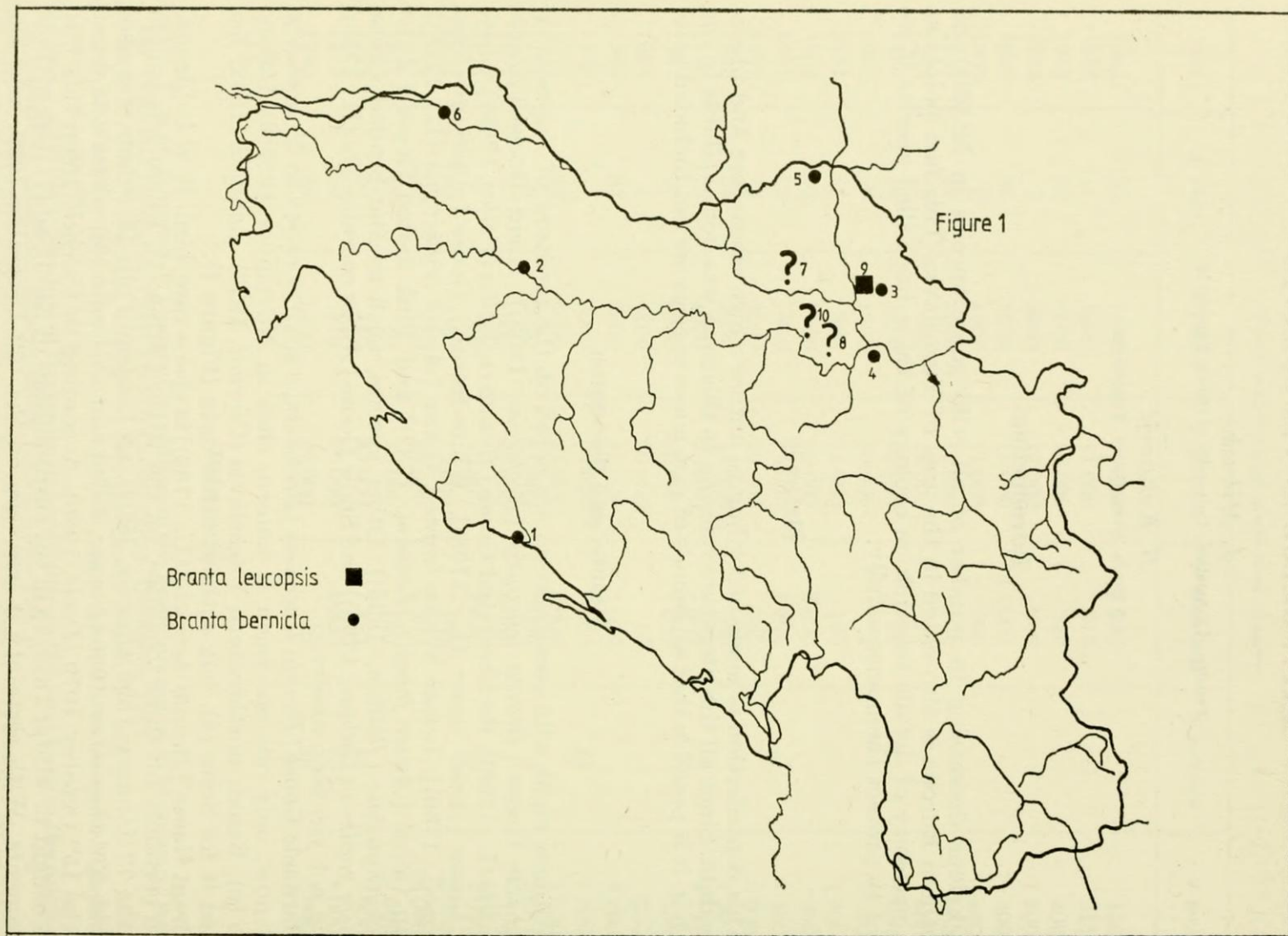


Figure XXIV/1: *Branta leucopsis* – *Branta bernicla*

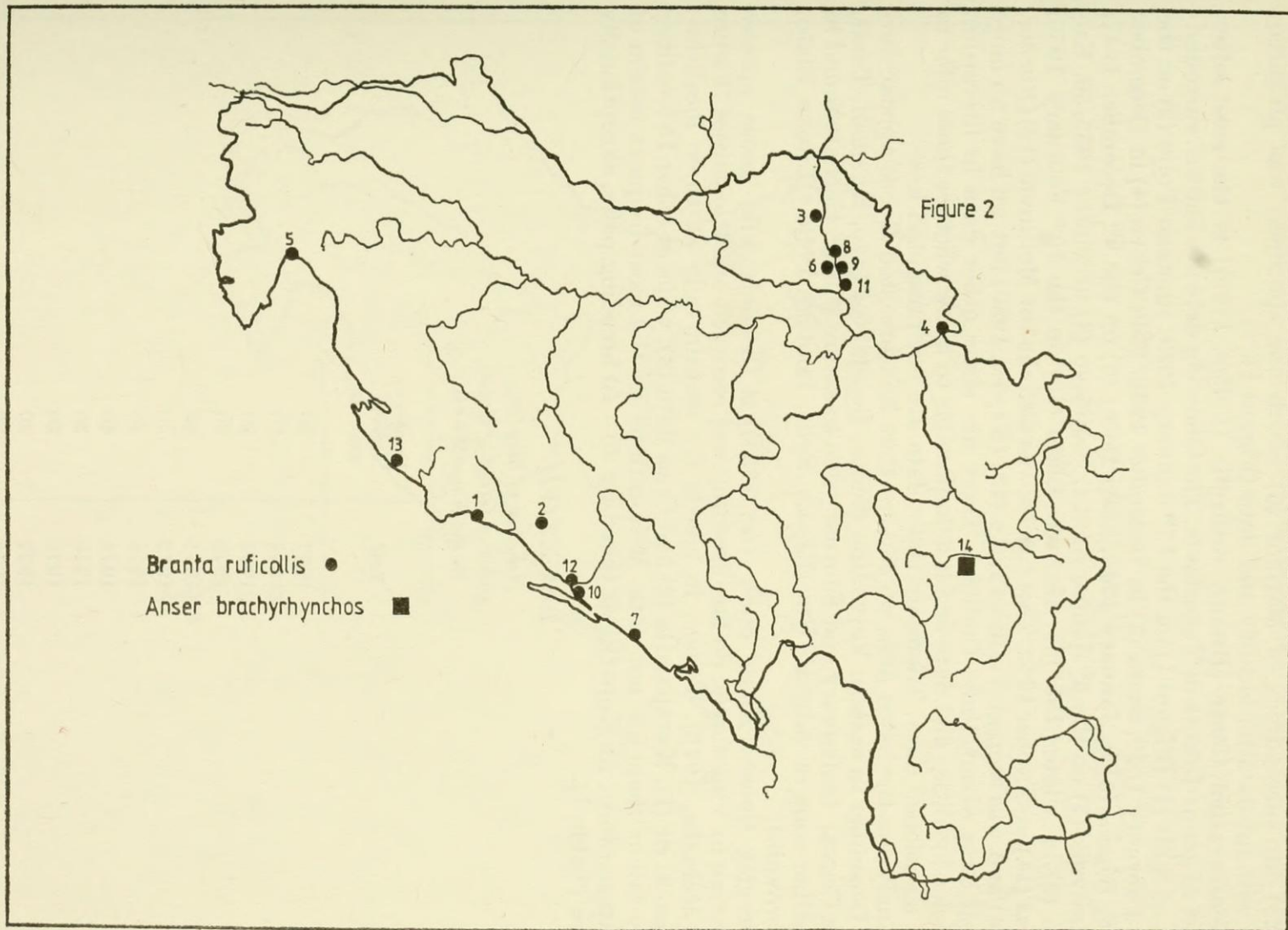


Figure XXIV/2: *Branta ruficollis* – *Anser brachyrhynchus*

(1925) for surroundings of Maribor (6) where one specimen was prepared, but without data on locality and date (Figure 1).

Red-breasted Goose [*Branta ruficollis* (Pallas, 1769)] is the most often guest of genus *Branta* in Yugoslavia. The following data are known: surroundings of Split (1) (Figure 1) on the 17th January 1929, Imotsko Polje (2) on the 28th February 1929, Senta (3) in December 1938, Bela Crkva (4) in December 1938, Rijeka (5) in January 1940, Stari Bečej (6) on the 9th December 1947, Dubrovnik (7) on the 6th January 1954, Stojičevo (8) in winter 1955/56, Kuzman (9) in winter 1955/56, Hutovo Blato (10) on the 10th February 1956, Taras (11) in October 1962. This species was also shot at Metković (12) (*Rucner*, 1954) and was seen at Vransko Lake (13) (*Krpan*, 1980) but we have no more detail data about these findings. There are some other data in literature, without localities and date and it is impossible to know whether these refer to still mentioned data. Therefore those data are not presented here.

Analysing the listed data we can see that Red-breasted Goose appear during December in eastern Vojvodina (Senta, Bečej, Stojičevo, Kuzman, Taraš, Bela Crkva). In January and February due to severe winter, they are found in coastline zone of Adriatic See (Rijeka, Split, Imotsko Polje, Hutovo Blato, Dubrovnik).

Greylag Goose [*Anser anser* (L., 1758)] is the only wild goose species breeding in Yugoslavia. So far, breeding was recorded on 28 localities (Figure 3) (*Mikuska*, 1973). Today, it breeds for certain only at three localities: Kopački rit (1), Karapandža (2) and Crna Bara (3), while at other 15 localities they fail or there are not data. Meliorations are the most frequent reason of disappearance. At Kopački rit there are 20 – 40 breeding pairs, exceptionally more (Table 1).

Table XXIV/1.

*Number of breeding
pairs of Greylag Goose
in the Kopački rit*

Year	Number of breeding pairs cca
1967	30
1968	20
1969	20
1970	30
1971	40
1972	30
1973	30
1974	40
1975	30
1976	20
1977	30
1978	30
1979	20
1980	30
1981	100

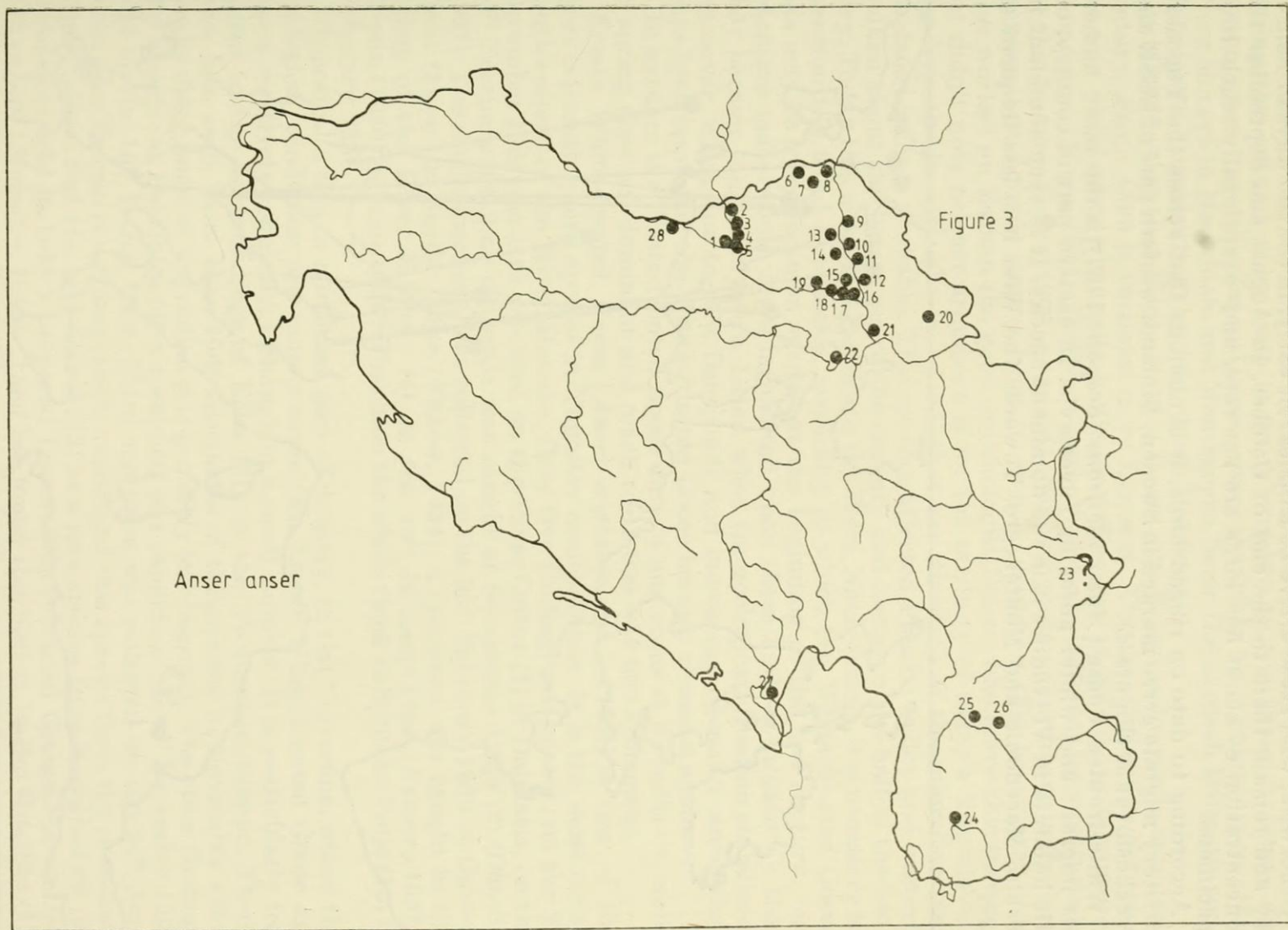


Figure XXIV/3: *Anser anser*

Otherwise, wild geese arrive at Kopački rit early, in the last days of February and remain there to the end of October. In August and September the concentration of about 500 birds are not rare, and exceptionally reach 1000 specimens.

According to data on ringed birds, it is obvious that across the Yugoslav territory migrate geese marked in Sweden, Finland, western part of USSR and Czechoslovakia (Figure 4).

White-fronted Goose [*Anser albifrons* (Scopoli, 1767)] is the most numerous migrant and winter guest in Yugoslavia. In eastern part of country, on salt habitats in Vojvodina it is the dominant species. It is very abundant in Serbia, Macedonia and Montenegro. Towards the West it is less frequent or rare.

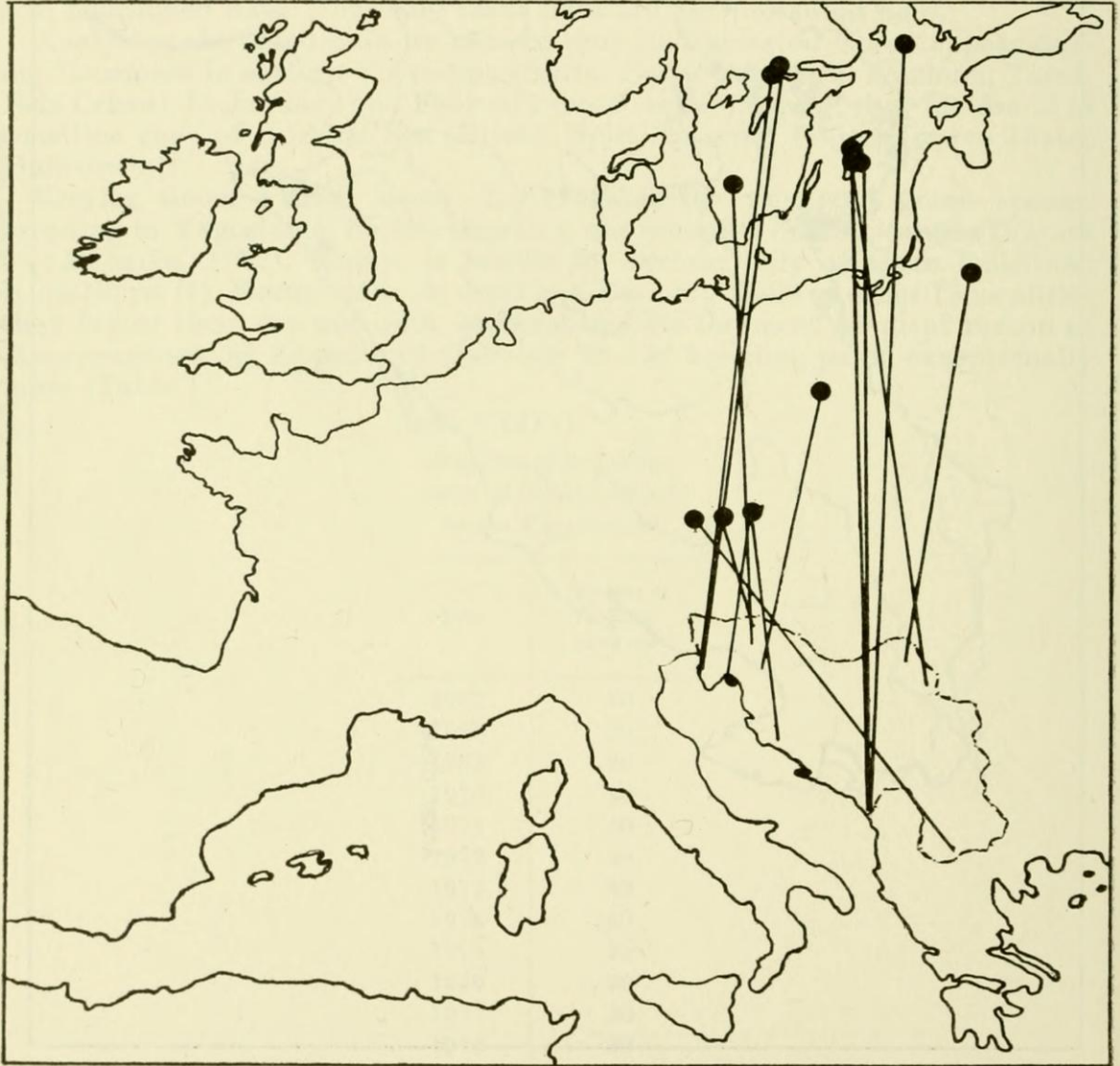


Figure XXIV/4: According to data on ringed birds

White-fronted Geese arrive in Banat, Yugoslavia, at the end of September. During the autumn they last in great number on the salted habitats. In winter, when water freezes and snow covers the fields, they migrate along the River Morava in Macedonia and Montenegro. Some flocks reach Dalmatia too. They leave Yugoslavia in spring, about March.

It is interesting that White-fronted Goose was almost unknown here in last century. From 1899 it becomes more frequent. The maximum was between the two world-wars when only in Panon valley was more than million geese in one year (*Nagy*, 1924). Different authors give the different interpretations for this feature. *Vertse* (1967) supposed that this goose was ordinary in the last century, but nobody argued it. Others doubt in this because at this time worked on Balkan the good ornithologist *Reiser*, who know this species, but didn't note neither argument it for the territory of today's Yugoslavia. The hypothesis, officially accepted, that the direction of the migration was displaced is more probable. This moving affected Pannon valley and western Balkan about the beginning of the century and lasted to the half of the century. Today this moving is farther to the West. Nevertheless, it is necessary to mention the third hypothesis, according to which the White-fronted Goose was may be very common species at the beginning of the last century, but intensive meliorations have influenced upon these birds so negatively that they became temporarily rare. Later, when the ecological situation stabilized, moreover, when due to new fish-ponds and increasing of water areas that have been improved the White-fronted Goose become common again.

In autumn the White-fronted Goose are not numerous at Kopački rit, while in spring they are dominant and reach to 10 000 – 18 000 specimens.

Lesser White-fronted Goose [*Anser erythropus* (L., 1758)] is one of the most interesting bird species in Yugoslav ornithofauna. It is the most rarity southwestern of the River Danube. Only five findings are known: on the 2nd December 1905 one bird was shot on the River Cetina (1) in Dalmatia, on the 11th February 1912 an old male was caught at Sarajevsko Polje (2) (*Obratil*, 1967). The single specimen was collected on the 25th February 1932 at Govedi Brod (3) on the Skadar Lake (*Führer*, 1934), a specimen was caught in the valley of the River Neretva (4) on the 10th January 1954 (*Rucner*, 1957). *Krpan* (1980) informs that he has seen the whole flock at Splitsko Polje (16) in February 1956.

Opposite to this in northeast part of country, in the Vojvodina, where the ecological conditions are more convenient, Lesser White-fronted Goose appears relatively regularly, although in a small number. It is particularly frequent in the surroundings of Ečka (5), on the Festucetum-Steppe. There, *ham* has seen more than 1000 specimens of this species in November 1969. In the other parts of Vojvodina it is probably less frequent. The other findings are known: at Batajnica (6) a specimen was caught on the 2nd December 1900 and on the 16th March 1903. Third specimen was collected on the 24th April 1906 near Zemun (7). *Szlavy* (1908) mentioned this species from the surroundings of Novi Sad (8), and *Šoti* (1973) as a rare species from Koviljski rit (9). *Litahorski* sold in 1938 a prepared Lesser White-fronted Gooses hot at Bela Crkva (10) (*Matvejev*, 1950). *Antal* has found this bird at Bačko Gradište (11) in 1952 and again on the 25th January 1955. *Csornai* (1959) has got one specimen of Lesser White-fronted Goose on the 24th January 1957, probably from the surroundings of Senta (12). In the same year *Dević* saw them twice at

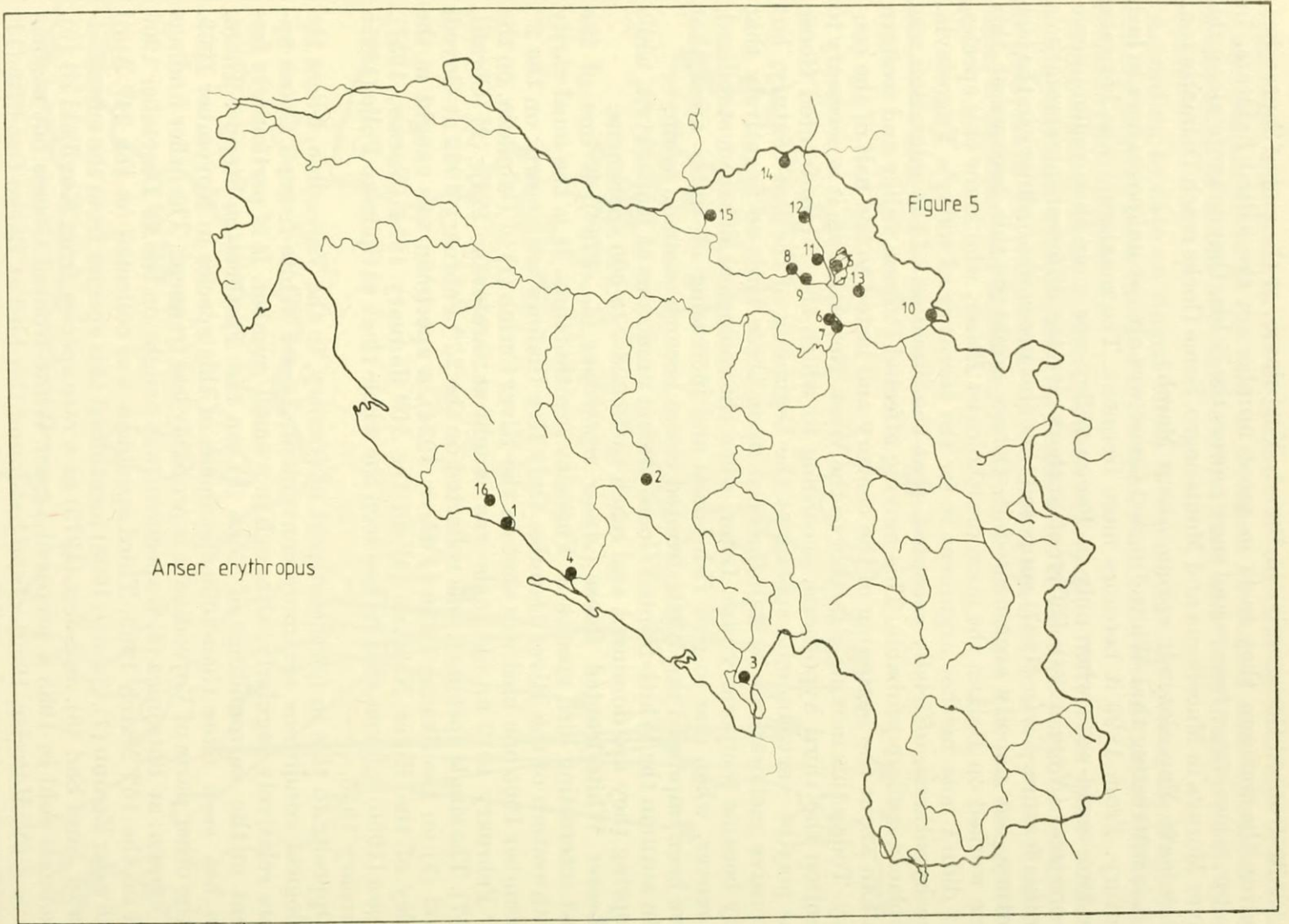


Figure XXIV/5: *Anser erythropus*

Idvor (13). A specimen was seen on the 28th February 1959 at Ludas Lake (14), and on the 25th January 1970 were shot two of 16 specimens, which have been seen at Apatin (15) (Figure 5).

So, we can conclude that in Vojvodina where the ecological conditions are suitable Lesser White-fronted Goose is migrant in a moderate number and sometimes it spend the winter although in a small number.

Bean Goose [*Anser fabalis* (Latham, 1787)] is the regular migrant and winter inhabitant. It retains in Yugoslavia from October to March. It appears in smaller flocks on the whole territory of Yugoslavia. In places, where ecological conditions are convenient it appears in a great number. Such an area is Kopački rit where regularly appears 10 000 and more specimens. In the northern parts of Yugoslavia it is most frequent in the October and November. Although a certain number spend the winter here regularly, the main part of population migrates towards south when snow falls and spend the winter in Serbia, Macedonia, Bosnia and Herzegovina (Karaman, 1950, Matvejev, 1950, Reiser, 1939). The birds retain there near unfrozen rivers. Due to shortage of food on this area the birds lose weight, their meat become stinking and slimy and this is the reason of local popular name "slimy bird".

According to Matvejev (1950) during the particularly bad years, such as 1928, 1939 and 1941, there were even mass death. In the mediterranean part of Yugoslavia, in Dalmatia, the Bean Geese appear nonregularly, rare (Krpan, 1960, 1965, 1970) only in the most severe winters and this is why the people there call this bird "messenger of bad year".

The majority of inspected specimens in Kopački rit belong to the transitive form *Anser fabalis* × *fabalis rossicus*. In addition to this at Kopački rit have been determined two subspecies, *Anser fabalis rossicus* Buturlin, 1933 and *Anser fabalis johanseni* Delacour, 1951 (Keve & Mikuska, 1973).

Pink-footed Goose [*Anser brachyrhynchus* (Baillon, 1833)] is one of the greatest rarity in Yugoslavia. The only one argumented specimen was caught on the 12th January 1905 at Prokuplje (Reiser, 1939) (14) (Figure 2). As stated, this species was shot on a several localities, but there are no specimens for argumentation and there is rightly doubt on the accuracy of determination.

Conclusions

According to above listed data it is obvious that till today eight wild goose species are noted on the territory of Yugoslavia. Only one species breeds here, but in a small number.

Four species, *Branta bernicla*, *B. leucopsis*, *B. ruficollis* and *Anser brachyrhynchus* are rare. *Anser erythropus* is a regular migrant but appears in a small number on a limited area in the northern part of Yugoslavia. Two species *Anser fabalis* and *Anser albifrons* regularly appear in a great number but less spend the winter here. We don't know where the most of them spend the winter.

Finally, we must point out that in connection with geese migration and spending the winter there are many unexplained questions. Therefore, the most important thing would be to organize the marking of these birds to get

the answers on, at least, some of that questions. No doubt we have to help to protect these birds.

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