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The birds of the Białowieża Forest

[with 2 text-figs.]

Ptaki Puszczy Białowieskiej

Abstract. The authors present a critical survey of the birds recorded from the Białowieża Forest based on their own observations carried out in 1950—1981 and on the data from literature. A total of 226 bird species, the occurrence of which has been sufficiently well documented, are listed. Among them there are such faunistic rarities as *Oiconia nigra*, *Milvus milvus*, *Aquila clanga*, *Circus pygargus*, *Falco peregrinus*, *Gallinago media*, *Bubo bubo*, *Strix nebulosa*, *Glaucidium passerinum*, *Locustella luscinioides*, *Acrocephalus paludicola*, *Phylloscopus trochiloides* and *Regulus ignicapillus*. The changes observed in the avian fauna of the Forest and detailed suggestions concerning the conservation of birds in the forest complex are also discussed.

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I. INTRODUCTION

The earliest information about the birds of the Białowieża Forest are contained in publications by AUER (1893—1894), KARTSEV (1903) and ALEKSEYEV (1910). The first faunistic publications were German works based on the collections and materials from the years of World War I (HEINROTH, 1918; REICHENOV, 1916a, b; SACHTLEBEN, 1920, 1921; ZEIDLITZ, 1920—1921; ZIMMERMANN, 1923).

The interwar period brought a list of 185 species or birds, elaborated on the basis of the collection in the museum at Białowieża (KARPIŃSKI, 1935), records in monographic works (DOMANIEWSKI, 1925, 1933; DOMANIEWSKI and RYDZEWSKI, 1937; DUNAJEWSKI, 1936), and a short note by KARPIŃSKI (1929).

During the 2nd World War TISCHLER's (1942, 1943a) two works were published. A copy of an unpublished paper of the same author, containing a number of observations made in the Białowieża Forest during the 1st and 2nd World Wars is kept in the library of the Białowieża National Park (1943b).

KARPIŃSKI's work on the role of birds in the biocenoses of the Białowieża National Park and a series of other publications of that author, containing data about the avifauna (KARPIŃSKI, 1949, 1965, 1972) have appeared since the war, but many of them need rectification. Apart from them, a great many notes and papers on more interesting bird species or their biology have been published as well (BERESZYŃSKI, 1977; BOROWSKI, 1955, 1960, 1961a, b, 1962, 1963, 1968, 1978; GOTZMAN, 1964; JAKUCZUN, 1974; JABŁOŃSKI, 1963; MRUGASIEWICZ and WOŁK, 1958; PIOTROWSKI, 1975; RUPRECHT, 1967, 1968; RUPRECHT and WALASZ, 1974; WOŁK, 1960, 1970, 1977a, b, 1978). The results of ringing are given in successive reports of the Ornithological Station (SZCZEP-SKI, 1951, 1963, 1965, 1970, 1976; SZCZEPSKI and SZCZEPSKA, 1953, 1956, 1957, 1959). OKOŁÓW (1975) deals with the problem of bird migrations. Having visited the Białowieża Forest, ornithologists from the GDR issued contributions to its avifauna (FISCHER, 1961; MATTHES and NEUBAUER, 1976). Particularly valuable are the results of studies on *Tetrastes bonasia* (BERGMANN et al. 1975, 1978; KLAUS et al. 1975, 1976; WIESNER et al. 1977) and observations on *Glaucidium passerinum* (SCHÖNN, 1978). A number of data about the avifauna of the Forest are comprised in monographs of particular species or the whole of the avifauna of Poland (BEDNORZ, 1974; BOCHEŃSKI, 1968; DOBROWOLSKI and NOWAK, 1965; SOKOŁOWSKI, 1958; ŚWIĘTORZECKI, 1959; TOMIAŁOJĆ, 1972).

Since 1974 quantitative studies have been carried on by the cartographic method in the Białowieża Forest. The study areas are situated both in the Białowieża National Park (strict nature reserve) and in the cultivated part of the Forest, also in the Białowieża Glade. The preliminary results of these studies have been published (TOMIAŁOJĆ, 1979, 1980; TOMIAŁOJĆ, WALANKIEWICZ and WESOŁOWSKI, 1977; WALANKIEWICZ, 1977).

Studies made in the eastern part of the Forest concerned, among other birds, birds of prey, gallinaceans and stork. Their results are scattered in many publications, often hard of access. Works by FEDYUSHIN and DOLBIK (1967) and DATSKEVICH (1971) constitute a recapitulation of the knowledge of the avifauna in the eastern part of the Forest. All the publications concerning the avifauna of the Białowieża Forest are specified in following volumes of the Białowieża Bibliography (KARPIŃSKI and OKOŁÓW 1969; OKOŁÓW, 1976, 1983, 1988).

II. GENERAL CHARACTERISTICS OF THE BIAŁOWIEŻA FOREST

The Białowieża Forest covers an area of 125 000 hectares. Till 1944 it formed a whole and so the data provided in literature before this date referred to the whole of its area. As a result of the shift of the state frontier the forest became divided. The western part, 58 000 hectares in area, belongs to Poland and the eastern part (67 000 hectares) lies in the Byelorussian S. S. R. (Fig. 1).

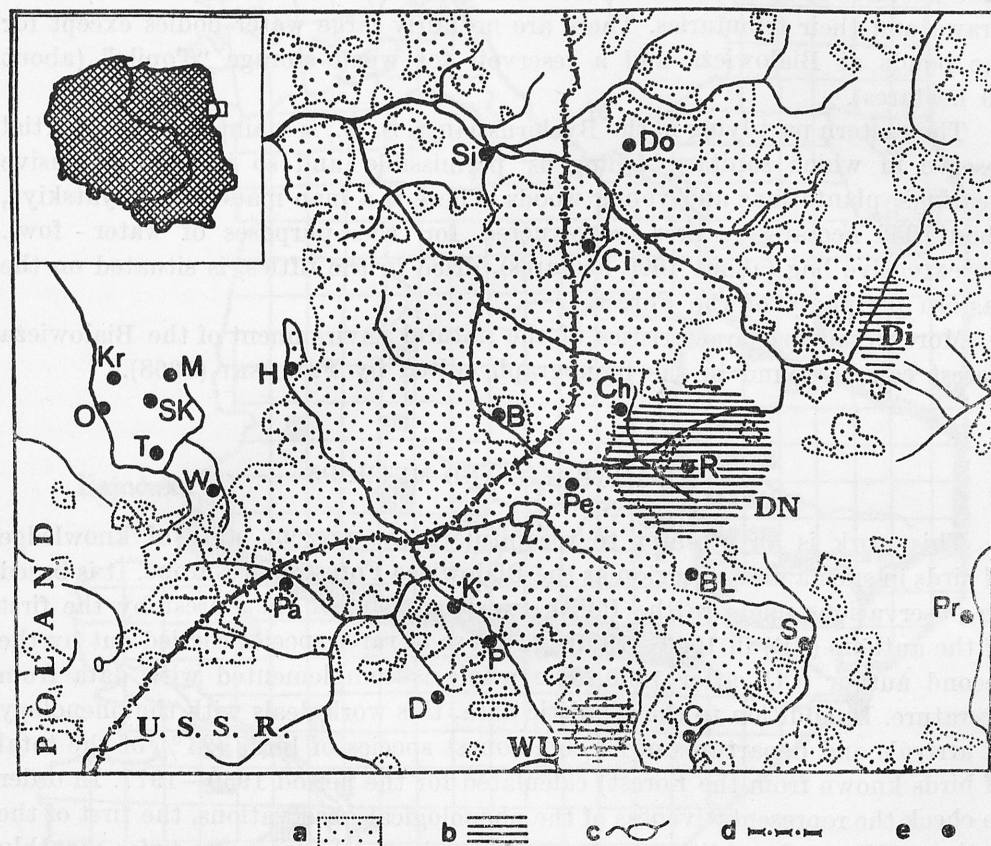


Fig. 1. A sketchy map of the Białowieża Forest. a — wooded area, b — bogs (Di — Dikoye, DN — Dzikі Nikor, WU — Wielki Ugoł) c — river and water reservoirs (L — Lyatskiye), d — state frontier, e — villages: B — Białowieża, BL — Biały Lasek, C — Czarnaki, Ch — Chwojnik, Ci — Cichowola, D — Dmitrowicze, Do — Dobrowola, H — Hajnówka, K — Kamieniuki, Kr — Krywaitycze, M — Mochnate, O — Orla, P — Paszuki, Pa — Panasiuki, Pe — Pererow, Pr — Prużany, R — Raubeck, S — Szereszewo, Si — Siemianówka, SK — Stary Kornin, T — Tofilowce, W — Witowo

The most valuable portion of the western part is the Białowieża National Park (5096 hectares); since 1977 it has been recognized as world reserve for biosphere and in 1979 was entered on the list of the World Heritage Sites. A strict nature reserve of an area of 4747 hectares is its main part. The

remaining part of the forest is occupied by managed woods (53 000 hectares), in which there are 13 nature reserves of a total area of 2432 hectares; these constitute a complement of the national park.

And so forest environment prevails in the western part, either in the form approximating the primeval forest (national park) or subjected to forest management. The non-forest landscape is represented by not very numerous clearings of settlements (the largest of them is the Białowieża Glade, about 1200 hectares in area) and the deforested valleys of the rivers Narewka, Leśna Prawa and their tributaries. There are no fairly large water bodies except for the ponds at Białowieża and a reservoir for wood storage "Topiło" (about 30 hectares).

The eastern part lying in the Byelorussian S. S. R., is maintained as a partial reserve in which sanitary felling is permissible and so it lacks extensive clearings, plantations and young woods. There is a man-made lake, Lyatskiye, about 350 hectares in area, constructed for the purposes of water - fowl. An extensive bog (about 4000 hectares), dried in the fifties, is situated on the eastern periphery of the Forest.

More detailed characteristics of the natural environment of the Białowieża Forest can be found in the monograph edited by FALIŃSKI (1968).

III. MATERIAL AND METHODS

This work is an attempt to recapitulate the present state of knowledge of birds in such a unique region as the Białowieża Forest is in Europe. It is based on observations made in the Polish (western) part of the Forest by the first of the authors (SB) in 1950—1977 and those of rarer species carried out by the second author (CO) after 1960. The whole is complemented with data from literature. In addition to the faunistic data, this work deals with the phenology of arrivals and departures of 54 commonest species of birds (24% of the total of birds known from the Forest) calculated for the period 1950—1977. In order to check the representativeness of the phenological observations, the first of the authors (SB) made additional observations along two transects twice monthly from March 1977 to May 1978. The first of the transects (12.8 km) extended along the streets of Białowieża and across a cultivated part of the Forest, with the associations: *Pino-Quercetum*, *Calamagrostio-Quercetum* and *Tilio-Carpinetum typicum*. The other transect (6.2 km) crossed the Palace Park, cultivated fields, the ecotone zone on the boundary of the strict reserve (with *Tilio-Carpinetum stachyetosum*, *Circaeo-Alnetum* and *Alnetum glutinosae* associations), along the Narewka valley (with alder-birch thickets, osieries, wet sedge meadows and reedswamp), the Narewka channel and the ponds in the Palace Park. In the course of these observations 10 202 meetings with 71 bird species (31% of the total) were recorded.

Because of the limited size of this publication the list of the birds observed

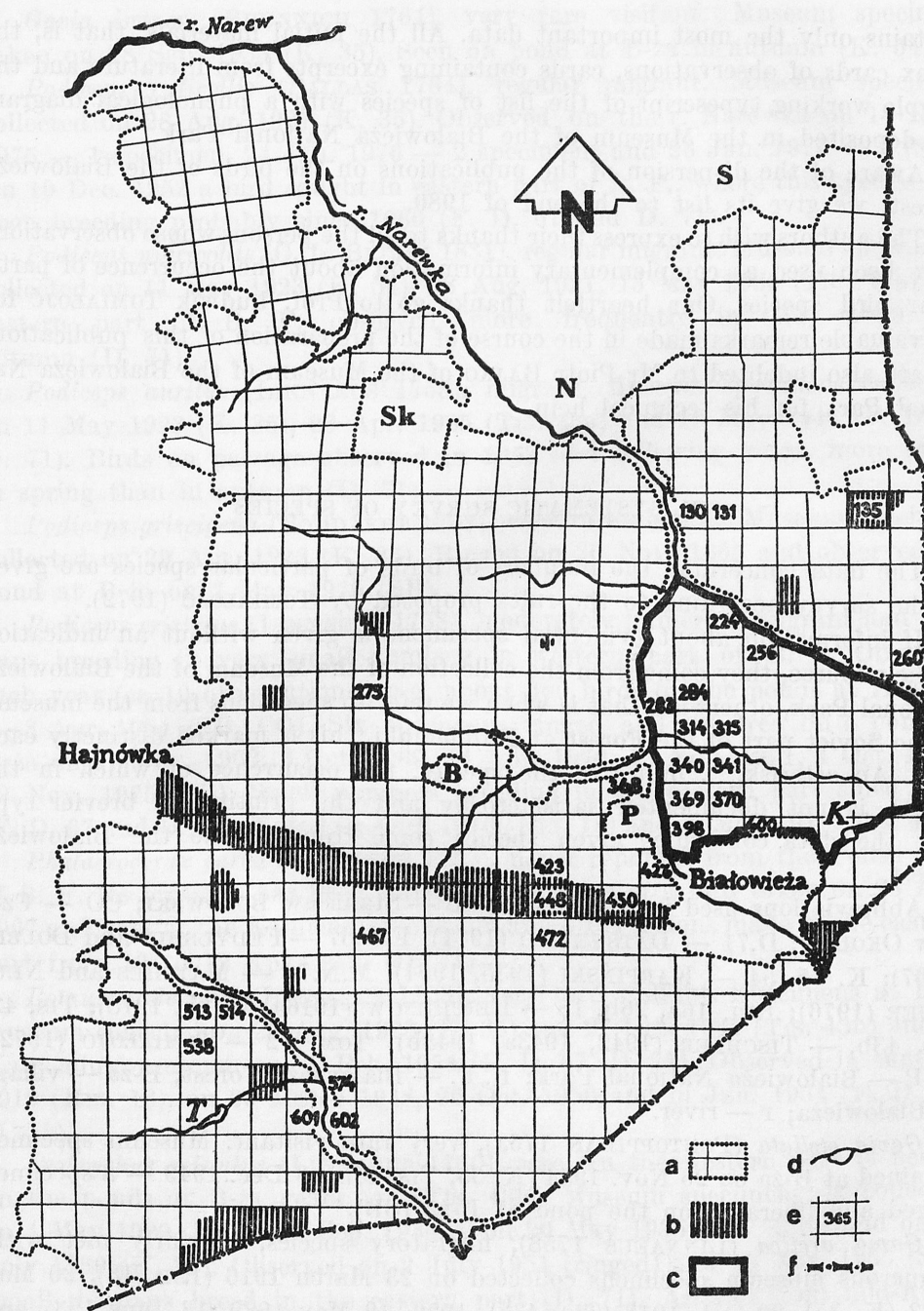


Fig. 2. The part of the Białowieża Forest belonging to Poland. a — forest margin, b — nature reserves outside BNP, c — borderline of BNP, d — rivers, water bodies, marshes, e — numbers of forest sections referred to in the text, f — state frontier. Abbreviations for the names of villages and other topographic points: B — Budy, K — Kletno (bog), N — Narewka, P — Pogorzelce, S — Siemianówka, Sk — Skupowo, T — Topiło (water reservoir)

contains only the most important data. All the initial materials, that is, the index cards of observations, cards containing excerpts from literature and the sample working typescript of the list of species with a phenological diagram are deposited in the Museum of the Białowieża National Park.

Aware of the dispersion of the publications on the birds of the Białowieża Forest, we give its list to the end of 1980.

The authors wish to express their thanks to all the persons whose observations have been used as complementary information about the occurrence of particular bird species. Our heartfelt thanks go to Prof. Ludwik TOMIAŁOJCZAK for his valuable remarks made in the course of the preparation of this publication; we are also indebted to Mr Piotr BAJKO of the Museum of the Białowieża National Park for his technical help.

IV. SYSTEMATIC SURVEY OF SPECIES

The data concerning the numbers of birds of particular species are given in the survey according to the rules proposed by TOMIAŁOJCZAK (1972).

If information about evidential specimens is given without an indication of their source, they come from the collection of the Museum of the Białowieża National Park, otherwise, that is when we refer to specimens from the museum of the Soviet part of the Forest at Kamieniuki, this is marked distinctly each time. An asterisk, *, indicates the species, the occurrence of which in the Forest is not documented satisfactorily and the printing in brevier type that the data concerning given species come from outside the Białowieża Forest.

Abbreviations used in the survey: SB — Stanisław BOROWSKI; CO — Czesław OKOŁÓW; D.71 — DATSKEVICH (1971); F.D.67 — FEDYUSHIN and DOLBIK (1967); K. 35, 54 — KARPIŃSKI (1935, 1954); M.N.76 — MATTHES and NEUBAUER (1976); REI. 16a, 26b, 18 — REICHENOW (1916a, 1916b, 1918); TIS. 42, 43a, 43b, — TISCHLER (1942, 1943a, 1943b); TOM. 72 — TOMIAŁOJCZAK (1972), BNP — Białowieża National Park; B. F. — Białowieża Forest; B-ża — village of Białowieża; r — river.

Gavia stellata (PONTOPPIDAN 1763), very rare visitant. Museum specimen obtained at B-ża on 26 Nov. 1934 (K. 35, TIS. 43b); 3 Dec. 1949 — a specimen ringed and liberated on the pond at B-ża (SB).

Gavia arctica (LINNAEUS 1758), migratory species, regularly met with. Numerous museum specimens collected on 23 March 1916 (REI, 18), 20 May 1923 (K. 35), 20 Oct. 1918 (TIS. 43a), 1926, 19 May 1929, 18 June 1937 and 7 June 1938 (TIS. 43b) and in eastern part of B. F. on 13 Oct. 1949, 30 Nov. 1949 and 2 specimens on 20 May 1951 (F. D. 67). The birds shot occurred in the company of other birds. The remaining observations were made on 6 Dec. 1917 (REI. 18), at the time of spring and autumn passages (TIS. 43a, F. D. 67), on 1 Apr. 1951 (F. D. 67) and 27 May 1978 on the pond at B-ża (SB).

Gavia immer (BRUNNICH 1764), very rare visitant. Museum specimen taken on 28 Sep. 1933 (K. 35). Seen on pond at B-ža in autumn (K. 54).

Podiceps ruficollis (PALLAS 1764), regular migrant. Museum specimen collected on 28 Aug. 1921 (K. 35). Observed on the r. Narewka on 14 Nov. 1975 — 1 specimen, 24 Jan. 1976 — 2 specimens and 26 Jan. 1976 — 4 (SB). On 10 Dec. 1952 a bird caught in eastern part of B. F., where this species has been breeding probably since 1966 (F. D. 67 and D. 71).

Podiceps nigricollis (C. L. BREHM 1831), regular migrant. Museum specimens collected on 11 May 1923 (K. 54), 28 Aug. 1921, 13 May 1936 (Tis. 43b). In eastern part of B. F. observed more frequently in May than in autumn (D. 71).

Podiceps auritus (LINNAEUS 1758), migrant. Museum specimens collected on 11 May 1923 (K. 35), 28 Apr. 1925 (Tis. 43a) and 16 May 1946 (F. D. 67, D. 71). Birds on passage observed in 1958 and following years, more often in spring than in autumn (D. 71).

Podiceps griseigena (BODDAERT 1783), very rare visitant. Museum specimen collected on 29 Apr. 1923 (K. 35). Ringed on 20 Nov. 1965 and observed on pond at B-ža on 7 May 1975 (SB).

Podiceps cristatus (LINNAEUS 1758), moderately numerous migrant and perhaps breeding in very small numbers in western part of B. F. Observed each year (ca 10 observations), e.g. about 300 birds on the ponds at B-ža on 7—8 Apr. 1954 (SB, CO). Six specimens ringed and set free on a pond at B-ža on 27 Nov. 1962, 9 Oct. 1969, 14 Apr. 1970, 13 Nov. 1971, 4 Oct. 1973, 29 Nov. 1975 (SB). Small numbers breeding in the eastern part since 1967 (F. D. 67 and D. 71). Noted in April 1916 (REL. 18) and in May 1918 (Tis. 43b).

Phalacrocorax carbo (LINNAEUS 1758), never reported from the Polish part of B. F. Its presence has been stated on the basis of a bird taken on 26 Apr. 1967 and kept at the Kamieniuki museum and observations made in the eastern part from 10 to 12 Apr. 1955 (D. 71).

Botaurus stellaris (LINNAEUS 1758), very rare visitant. Specimens at B-ža museum collected on 22 Aug. 1928 (K. 35) and 27 Oct. 1934 (Tis. 43b) and at Kamieniuki museum on 26 Feb. 1954 (F. D. 67, D. 71). Observed in summer 1916 (REL. 18), on 30 March 1948, 20 Oct. 1950 and in Jan. 1954 (F. D. 67, D. 71).

Ixobrychus minutus (LINNAEUS 1766), rare. In the western part it nested on the ponds at B-ža years ago (Tis. 43b). Museum specimens: ♂ collected on 4 May 1929, juv. on 7 Sep. 1934, ♀ on 20 May 1935 (Tis. 43b). and on 27 July 1930 (K. 35). Observed on 2 July 1951 (ringed) and 15 Apr. 1955 (SB). Small numbers breed in the eastern part (D. 71). Arrivals from mid-April, departures: in Aug. and Sep. (D. 71).

Nycticorax nycticorax (LINNAEUS 1758), never seen in the Polish part of B. F., one specimen obtained near Szeroszew, 13 km east of the Forest in summer 1950 (F. D. 67, D. 71).

Ardea cinerea LINNAEUS 1758. Its nesting in the western part of B. F. has not been observed, although near Orla, ca 10 km west of the Forest, GRYGORUK

ringed 5 chicks in 2 nests on 26 June 1977 (SB). Some specimens were taken in autumn 1916, April 1917 and observed on 31 March 1917 and in Oct. 1919 (REL. 18). Museum specimens at B-ža collected on 1 Aug. 1922 (K. 35) and at Kamieniuki on 30 March 1957 (F. D. 67). Further observations made on 25 and 26 May 1942 (TIS. 43b), 30 March 1957, 10—22 June 1969 (SB) and 20 May 1972 (CO). In the eastern part of B. F. they breed in small numbers (Paszuki, Planta (D. 71). Arrivals: from mid-March throughout Apr., departures: in Sep. and 1st half of Oct.

Ardea purpurea LINNAEUS 1766, very rare visitant. Juv. male collected in B-ža Clearing on 4 Sep. 1943 (TIS. 43a); museum specimen at Kamieniuki taken on 18 Aug. 1962. Observed on 27 Aug. 1968 (D. 71).

Ciconia ciconia (LINNAEUS 1758), moderately numerous breeding species. In 1977 there were 17 nests at B-ža and 29 chicks in 13 of them. Arrivals: 20 March — 12 Apr., departures: 23 Aug. — 5 Sep. The data from the years 1947—1981 show that the population of the White Stork in B-ža Clearing hardly changed in number at that time except for a slight decrease, smaller than in other regions. In that period 315 chicks were ringed (SB). The recoveries of the Storks ringed in both parts of B. F. have been reported from the Ukraine, Bulgaria, Romania, Transjordan and Rhodesia (LEBEDEVA, 1960; SB).

Ciconia nigra (LINNAEUS 1758), unfrequent breeding bird. In BNP occupied nests were seen in Secs. 224 and 341 (SB, CO). In the eastern part of the B.F. 20 nesting pairs were noted till 1950; later, owing to the drying of the marshes, their number fell to 5 pairs in 1969 (D. 71). Arrivals: 25 March — mid-Apr., departures: 1—12 Sep. Observed by many authors every year.

Branta bernicla (LINNAEUS 1758). Seen only once by Mr W. PIOTROWSKI (pers. comm.) on the r. Narewka on 16 Apr. 1975.

Anser anser (LINNAEUS 1758), moderately numerous migrant. Observed by many authors every year. Museum specimen collected on 16 Oct. 1926 (K. 35). Spring migrations recorded from the beginning of March to 10 Apr., with a peak of intensity in the last days of March. Autumn migrations, less numerous, from the end of Sep. to 7 Nov., with a peak in mid-Oct. (SB).

Anser albifrons (SCOPOLI 1769), moderately numerous migrant, observed by many authors every year. Museum specimen collected in Apr. 1963 (SB). Spring migrations: 3 March — 10 Apr.; autumn migrations, less abundant: 20 Oct. — 17 Nov. They often fly over by night (SB).

* *Anser erythropus* (LINNAEUS 1758), seen only once in the eastern part of B. F. on 26 March 1953 (F. D. 67), which observation however needs confirmation.

Anser fabalis (LATHAM 1787), less abundant than the Greylag and White-fronted Goose, but passing over regularly at the same time. Museum specimen collected on 2 Oct. 1935 (K. 35). W. NIEROBA took *A. f. brachyrhynchus* BAILLON 1833 in B-ža Clearing in mid-Oct. 1979 (det. SB).

Cygnus olor (GMELIN 1785), rare; observed on 2 Feb. 1974 and from 2 to 12 Nov. 1975 (2 pairs on the r. Narewka — SB). Breeding halfwild on ponds

at B-ža since 1978. A pair or two nesting on the reservoir Lyatskiye in the eastern part since 1966 (D. 71).

Cygnus cygnus (LINNAEUS 1758), observed in the eastern part: 3 specimens on the r. Kolonka, 2—25 Feb. 1948 and 2 birds flying over r. Narew on 31 March 1949 (F. D. 67, D. 71). Absent from western part.

Anas platyrhynchos LINNAEUS 1758, numerous breeding bird, noted by all authors. Its specimens are in both museums. Wintering on unfreezing marshes and swift-flowing sections of rivers. Arrivals: mid-March — mid-Apr., departures: mid-Oct. — mid-Nov.

Anas crecca LINNAEUS 1758, not numerous breeding species. Museum specimen collected on 18 July 1921 (K. 35). Observed on 9 Apr. and 17 May 1917 (REL. 18), later on the r. Hwoźna in May 1935 (1 pair) and in 1966—1977 (SB). Arrivals: mid-Apr., departures: mid-Nov. (SB, D. 71).

Anas strepera LINNAEUS 1758. Museum specimens at B-ža collected on 21 Apr. 1935 (K. 35) and at Kamieniuki in August 1968 and Oct. 1969 (D. 71). This species may breed in small numbers on the reservoir Lyatskiye in the eastern part of the B.F. (D. 71).

Anas penelope LINNAEUS 1758, moderately numerous regular migrant. Museum specimen collected on 5 Oct. 1934 (K. 35). Night flights over BNP heard in 1951—1977 (SB). Arrivals: end of March — mid-Apr., departures: end of Sep. — beginning of Nov. (D. 71)

Anas acuta LINNAEUS 1758, not numerous and irregular migrant. Museum specimens collected on 3 Aug. 1928, 25 July 1931 and 24 Aug. 1935 (K. 35, 54). Observed on ponds at B-ža on 8 Apr. 1962, 12 Sep. 1970 and 12 Sep. 1971 (SB). Several birds on passage observed by D. 71 round 1 Apr., but not every year.

Anas querquedula LINNAEUS 1758, fairly numerous breeding species. Museum specimen collected on 4 July 1921 (K. 35). Breeding noted in eastern part on 28 Apr. and 22 May 1952 (F. D. 67); many observations in 1916, 1917 (REL. 18) and later in various years between 1960 and 1977 (SB, CO). Arrivals: end of March. — mid-Apr., departures: end of Aug. — mid-Oct. (F. D. 67, D. 71, SB).

Anas clypeata LINNAEUS 1758, regular migrant. Museum specimen collected on 21 Apr. 1930 (K. 54). Small numbers breed in the eastern part from 1968 (D. 71).

Aythya ferina (LINNAEUS 1758). Museum specimen collected on 2 Oct. 1928 (K. 35, 54). Small numbers breed in the eastern part from 1968 (D. 71).

Aythya nyroca (GÜLDENSTAEDT 1769), regular migrant. Museum specimen taken on 30 March 1937 (K. 54). Observed on ponds at B-ža on 26 Sep. 1969 (SB) and on rivers Leśna and Narew in eastern part of B. F. (D. 71).

Aythya fuligula (LINNAEUS 1758), migrant in Polish part of B. F. Museum specimens collected on 4 May 1921 (K. 35) and 25 Oct. 1918 (TIS. 43ab). Observed at B-ža: 4 May 1975 — a pair, 24 Apr. 1976 — 1 ♂ (SB) and on Lyatskiye reservoir in eastern part: 30 May 1974 — 4 pairs (SB); they perhaps nest there.

Aythya marila (LINNAEUS 1761), very rare visitant. Museum specimens

collected on 6 Oct. 1934 (K. 34) and 8 Nov. 1953 (F. D. 67). Observed on ponds at B-ža: 15 Apr. 1966 — 1 ♂ and 20 May 1977 — a pair (SB).

Melanitta fusca (LINNAEUS 1758), one specimen (juv. ♀) only, in Kamieniuki museum, collected on r. Leśna on 26 Nov. 1953 (D. 71)

Bucephala clangula (LINNAEUS 1758), migrant. Museum specimen taken on 11 Apr. 1931 (K. 35). Observed at B-ža: 15 Apr. 1960 and 7 Apr. 1969 (SB). Spring passage: 21 March — 10 Apr., departures: mid-Oct. until water has frozen (F. D. 67, D. 71, 77).

Mergus albellus LINNAEUS 1758, sporadic visitant. Museum specimen collected at B-ža on 21 Apr. 1930 (K. 35). Small flocks of 8—15 birds were observed on unfrozen portions of the r. Leśna on 11 Feb. 1947 and in Jan. and Feb. 1957 and 1955 (F. D. 67, D. 71).

Mergus merganser LINNAEUS 1758, very rare visitant. Museum specimen collected in Nov. 1929 (K. 35). Observed only on unfrozen sections of r. Leśna in winter (F. D. 67, D. 71); 1 specimen taken in Jan.

Mergus serrator LINNAEUS 1758. Museum specimens (20 Apr. 1960) collected in western forefield of B. F., near Hajnówka and on Lake Wygonowskie (F. D. 67). It may fly over the Forest on migration.

Pandion haliaëtus (LINNAEUS 1758) was seen twice in the Polish part of B. F.: near the mouth of the r. Łutownia in Sec. 340 in Apr. 1950 and on the r. Leśna in Secs. 513—514 on 20 Apr. 1968 (SB). It was met with in the eastern part of B. F. on 8 Apr. 1949 (F. D. 67) and later by the flooding rivers in Apr. every year (D. 71).

Pernis apivorus (LINNAEUS 1758), breeding species. Museum specimens collected on 31 May 1917 (REI. 18), 20 July 1929 (K. 35), 22 June 1929 and 25 June 1936 (TIS. 43a). Observed: 24 May 1941 (TIS. 43b), in Sec. 574—26 June 1974 (CO), in Sec. 467A — 17 June 1977 (SB); in eastern part of B. F.: 5 Apr. 1951 and 2 nests with eggs, one on 8 June 1948 and one on 4 June 1959 (F. D. 67). In 1956—58 GOŁODUSHKO (1961a, b) observed the growth of chicks in 7 nests. 8—10 pairs are assumed to nest in the eastern part of B. F. (D. 71). Arrivals: mid-Apr., departures: end of Aug. — mid-Sep.

Milvus milvus (LINNAEUS 1758), very unfrequent breeding species. Museum specimens collected on 2, 10, 30 June 1917 (REI. 18), 30 Apr. and 9 July 1930 (K. 35) and 8 Jan. 1935 (TIS. 43b). Observed on the wing over river valleys in July 1950, Aug. 1955 (SB) and June 1969 (M. N. 76). MRUGASIEWICZ and WOLK (1958) noted its nesting in the Polish part of the Forest and GOŁODUSHKO (1961a, b) in the eastern part in 1946, 1953 and 1956—58. Arrivals: 6 March — 8 Apr., departures: end of Aug. — end of Sep. (D. 71, 77).

Milvus migrans (BODDAERT 1783), not numerous nesting bird. Specimens collected on 28 Apr. and 23 May 1930 (K. 35) and 1 ♂ on 29 July 1952 (F. D. 67). In 1916—1917 it was frequently met with (REI. 18; TIS. 43b); later observations: June 1969, 12 Apr. 1970, 21 Apr. 1974, 26 Apr. 4 May, 19 June 8 Aug. 1975, 5 June 1977 (SB, CO). M. N. 76 observed it over the rivers Narewka and Łutownia. It nests in the eastern part of B. F. (F. D. 67, D. 71, GOŁODUSHKO

1961a, b). Arrivals: end of March — mid-Apr., departures: mid-Aug. — beginning of Sep. (D. 71).

Haliaeetus albicilla (LINNAEUS 1758), sporadic visitant. Museum specimen collected on 4 Feb. 1929 (K. 35). Another was shot in 1917 (REI. 18). Later observed on r. Narewka in Aug. 1950 (J. GAPANOWICZ, pers. comm.), over the gate of BNP on 10 March 1975 (W. PUCHALSKI, pers. comm.) and over Lake Lyatskiye on 21 Nov. 1975 (SB). F. D. 67 write about catching and setting free a specimen in 1929 and observing one twice in the eastern part of the Forest in 1936.

Accipiter gentilis (LINNAEUS 1758), fairly numerous resident breeding species. There are specimens in the museums at B-ža and Kamieniuki. Observed repeatedly, including breeding, by many authors. Lately less numerous.

Accipiter nisus (LINNAEUS 1758), resident breeding species. About 10 specimens collected for B-ža and several for Kamieniuki museum. Observed repeatedly, not excluding its breeding, by many authors. Less numerous than Goshawk.

Buteo lagopus (PONTOPPIDAN 1763), visiting and wintering. There are specimens at the museums at B-ža and Kamieniuki. Observed by many authors every winter, mainly from Nov. till March; earliest observation on 6 Oct. (1962) and the latest on 8 Apr. (1969 — SB). More numerous in years abounding in small rodents and in frosty winters.

Buteo buteo (LINNAEUS 1758), moderately numerous breeding species. Commonest diurnal bird of prey, represented in the museums on both sides of the frontier. Observed repeatedly, including breeding, by many authors. Arrivals: March, departures: Sep. — Nov. (F. D. 67; D. 71, 77; SB).

Hieraetus pennatus (GMELIN 1768), very rare breeding species. Museum specimens (♂♂) at B-ža collected on 10 Sep. 1929, 8 Sep. 1923 (K. 35, Tis. 43a). In the eastern part of B. F. its nests were reported from Sec. 862 on 24 July 1951, Sec. 783 on 10 June 1952 and Sec. 809 in 1956 (F. D. 67, D. 71). Observed in the place where the r. Łutownia empties into the Narewka on 12 June 1968 (CO). In 1980 a pair was often seen near the entrance to the strict reserve in BNP (SB, CO). Observed in B-ža Clearing by A. RUPRECHT on 5 June 1981 (pers. comm.).

Aquila clanga PALLAS 1811, very rare. Museum specimens collected on 9 May and 25 Oct. 1929 (K. 35, Tis. 43a, b). A nest with 2 adult birds was found on 26 May 1942 (Tis. 43a, b), 2 adult birds on the nest were also seen in Sec. 283 on 23 May 1964 (CO). Eggs taken on 9 May 1929 are in the museum (K. 35). Copulation observed in Sec. 426 on 3 May 1975 (A. RUPRECHT, pers. comm.). Other observations: 4 July 1951 (F. D. 67), 10—22 June 1969 (M. N. 76). Arrivals: from mid-March throughout April, departures: Sep., though 4 specimens were flying over still on 26 Oct. in 1974 and a pair was seen from 1 to 11 Nov. 1974. Seven birds flew on 10 Sep. 1976 and one was observed over the frozen r. Leśna on 19 Feb. 1981 (SB).

Aquila pomarina C. L. BREHM 1831, unnumerous. There are several speci-

mens in museums at B-ża and Kamieniuki. Observed repeatedly by many authors, among them by SB and CO. The chick was ringed on 18 June 1955 in Sec. 398. Arrivals: March — Apr., departures: end of Aug. — Sep. The departure of flock of 12 birds was seen on 10 Aug. 1977 (SB).

* *Aquila heliaca* SAVIGNY 1809. Observed only once by LÖNS on 31 March 1917, but he was not sure about identification (REL. 18).

Aquila chrysaetos (LINNAEUS 1758). In spite of REL. 18's suggestion, its nesting has not been found certain. Museum specimens collected on 8 Jan. 1925 (K. 34), 15 Jan. 1932 and 13 Dec. 1942 (TIS. 43b); on 15 Oct. 1951 and in July 1971 in eastern part (F. D. 67). Observed by the entrance of the strict reserve of BNP in Aug. 1969 (PUCHALSKI, pers. comm.) (SB). Other observations: 19 Nov. 1972 (SB), in the Narewka valley in Sec. 398 on 7 June 1973 and 2 specimens over the r. Narewka in Sec. 224 on 6 June 1977 (CO).

Circus gallicus (GMELIN 1788), rare breeding species. Specimens at B-ża museum collected on 23 Apr. 1928 (TIS. 43b), 8 Sep. 1930 (K. 35), 25 May 1934 (TIS. 43b) and at Kamieniuki on 20 Aug. 1949 (F. D. 67). Observed: June 1935 (K. 35), 25 May 1942 (TIS. 43b), 2 May 1951, 22 Apr. 1952 (F. D. 67) and 10 Aug. 1962 (SB). FISCHER (1961) reports its nesting in the reserve for bisons and in the strict reserve. M. N. 76 observed these birds on the rivers Łutownia, Narewka and Leśna and found a nest in a tree by the r. Narewka in June 1969. Arrivals: 13—21 Apr., departures: end of Aug. — mid-Sep. (D. 71, 77).

Circus cyaneus (LINNAEUS 1766), rare breeding species. Observed on 18 Apr. 1916 and 8 Apr. 1917 (REL. 18), in winter in 1948—1952 and on 1 Jan. 1953 in the eastern part of the Forest (F. D. 67) and on 12, 15 and 16 Dec. 1976 in the western part (SB). Museum specimens collected on 14 July 1928 (K. 35), 9 Oct. 1923 (2 ♀♀), 9 Apr. 1928 and 30 July 1931 (♂, TIS. 43b). FISCHER (1961) observed a female on 20 May and thinks that this species nests in B. F. and so does D. 71, who claims that at least 2—3 pairs nest in the eastern part every year. Arrivals: end of March — mid-Apr., departures: from mid-Aug. throughout Sep. (D. 71).

Circus macrourus (GMELIN 1771), sporadic visitant in the past. Museum specimens collected on 30 July 1931 (K. 35), 9 Apr. 1928, 2 May and 22 Aug. 1929, 7 Sep. 1934 (TIS. 43a, b). Observed also in spring and autumn by TIS. 43b.

Circus pygargus (LINNAEUS 1758), unfrequent in eastern part of B. F. Observed on 22 July 1951 and 16 July 1952 and a nest with 2 fledglings on 6 July 1952 (F. D. 67; D. 71). In the western part nesting was not found, birds being observed on 13 and 17 Oct. 1918 (REL. 18), 10 Nov. 1974, 24 Apr. 1976 and 12 Oct. 1977 (SB). M. N. 76 observed 1 ♂ on the r. Narewka near Łutownia. Museum specimens collected in 1928 (K. 35), 4 ♂♂ on 27 May 1927, 8 May 1928, 22 Aug. 1929 and 2 Sep. 1929 and 2 ♀♀ on 8 May and 15 Aug. 1928 (TIS. 43a, b). Arrivals: 1st half of Apr., departures: from mid-Aug. throughout Sep. (D. 71).

Circus aeruginosus (LINNAEUS 1758), rare breeding species. Museum specimens collected on 26 Aug. 1917 (REI. 18), 15 July 1928 (K. 35), 29 May and 29 June 1928, 15, 22, 27 and 29 May 1929, 29 Apr. and 3 Aug. 1930 (TIS. 43b). Observed on 5 Aug., 26 Sep. 1951 and 20 Aug. 1967 (D. 71) in eastern part of B. F. and 9 Dec. 1962 in western part (SB). Lately, a nest has been found in the western part of the Forest (PUGACEWICZ, pers. comm.).

Falco peregrinus GMELIN 1788, rare breeding bird. Museum specimens collected on 24 May 1930 (K. 35), 1 May 1929 and 16 June 1930 (TIS. 43b). REI. 18 reports 1 ♀ seen by the nest, without giving the date of observation. FISCHER (1961) also saw 1 ♀ by the nest on 24 May 1961. Other observations: 20 Sep. 1955 (SB) and 4 Aug. 1966, on passage (CO). In the eastern part of B. F. nests were observed on 25 May 1948, 17 Apr. 1949 and 14 June 1951 (F. D. 67). GOLODUSHKO (1961a, b) studied the diet of chicks (in 1956 in 3 nests, in 1957 in 4 and in 1958 in 5). According to D. 71, 4—5 pairs nest in the eastern part of B. F. now. Arrivals: 17 March — 4 Apr., departures: Aug. and first days of Sep. (F. D. 67, DATSKEVICH, 71; 77).

Falco subbuteo LINNAEUS 1758, rare breeding species. Specimens collected on 14 May, 14 Aug., 4 and 14 Sep. 1928 (K. 35). Observed on 23 Apr. 1917 (REI. 18), 10—22 June 1969 (M. N. 76), 22 Dec. 1968, 9 Dec. 1973, 9 July 1976 (SB), 21 June 1974 and 26 July 1975 (CO). GOLODUSHKO (1961a, b) studied the diet of chicks in the eastern part of B. F., 3 nests in 1956, 3 in 1957 and 5 in 1958. 18 nests were found in the eastern part in 1960 (F. D. 67, after GOLODUSHKO). DATSKEVICH, 71, 77 however writes that scarcely 3—4 pairs nested in them in the 1970s. Arrivals: 15—28 Apr., departures: Aug. and first days of Sep.

Falco columbarius LINNAEUS 1758, very rare visitant. Museum specimens collected on 4 Jan. 1942 (TIS. 43b) and, in the western forefield of the Forest, in Nov. 1969. Observed on passage in eastern part from Oct. till March (F. D. 67; D. 71).

Falco vespertinus LINNAEUS 1766, rare visitant. Museum specimen collected on 22 July 1928 (K. 35). FISCHER (1961) observed a female on 23 May 1961, F. D. 67 on 10 Sep. 1950, D. 71 a flock (50—60 birds) staying near Biały Lasek from 5—12 Sep. 1968, SB on 9 Dec. 1962, 10 Jan. 1971 and 15 Dec. 1974.

Falco tinnunculus LINNAEUS 1758, not numerous breeding species. Museum specimens collected on 3 Dec. 1915 (REI. 16a) and 18 July 1922 (K. 35). A nest was observed in Sec. 400 on 31 May 1918 (TIS. 43b), another with 3 chicks was found at the edge of the eastern part of B. F. on 25 June 1950. Observed on 16 Apr. 1968, 15—16 Sep. 1973, 1 Sep. 1973 and over fields in 1976 and 1 Sep. 1977 (SB). Arrivals: 1st half of Apr., departures: end of Aug. — mid-Oct. (D. 71).

Tetrastes bonasia (LINNAEUS 1758), numerous stationary species. Museum specimens collected on 20 Apr. 1916 (REI. 18), 14 Oct. 1921, 12 Oct. 1922, 28 June 1930, 2 Oct. and 1 Dec. 1931 (K. 35). Nesting has been noted by many authors, e.g. SB: 10 eggs on 1 May 1953, juveniles on the wing on 26 May

and 13 June 1953, nestlings on 1 June 1957, 28 May and 26 Aug. 1960. Adult birds observed, among others, on 1 and 8 Apr. 1953, 13 May 1953, 1 Apr. 1957 and 2 May 1960 (SB, CO). A displaying pair was watched on 2 May 1979 (CO). Acc. to the census in 1952—1959, its population in the eastern part of the Forest was 5000—7000 birds and in the autumn 13 000—16 000 (D 71, 77). Reported also by TIS. 43a, FISCHER (1961), TOM. 72, M. N. 76, BERGMANN et al. (1975, 1978), KLAUS et al. (1975, 1976), WIESNER et al. (1977).

Lyrurus tetrix (LINNAEUS 1758), fairly numerous stationary bird. Mating display was noted in the valleys of the rivers Narewka and Leśna, in Białowieża Clearing and in the eastern and western forefield of B. F. (REI. 18; K. 35, 54; TIS. 43b, F. D. 67; D. 71, 77, SB and CO). Nests were found and chicks seen (F. D. 67). Autumn tooting was heard on 27 Oct. 1974 (SB). In the eastern part there were 39 leks in 1951 and only 5 (!) in 1969 (D. 71). They have decreased in number also on the Polish side recently.

Tetrao urogallus LINNAEUS 1758, not numerous stationary species. Museum specimens collected in 1929, on 2 May 1930 and 25 Apr. 1937 (K. 35, 54). Shooters shoot 3—5 cocks every year. AUER (1893—94) published the first records of 30 leks in the Forest. KARTSEV (1903) writes about 50 leks. ALEKSEYEV (1910), REI. 18 and many other authors also heard tooting. Capercaillies were met with in various seasons of the year, breeding was observed. A drastic decrease in their number has been found throughout the Forest; it is caused by changes in the environment following the drainage of the marshes in the eastern part of B. F. (DATSKEVICH and VAKULA, 1980). Two leks used are known at present in Sections 131 and 135 in the western part (data presented by L. MIŁKOWSKI and SB concerning 1980) and there are perhaps other grounds in Sections 224, 260, 513 and 538 (SB and L. MIŁKOWSKI).

Perdix perdix (LINNAEUS 1758), not numerous stationary bird in Białowieża Clearing; very rare after severe winters. Museum specimens collected on 29 Nov. 1915 (2 ♂, REI. 16a), 11 Dec. 1921, 22 Dec. 1922, 11 Oct. 1931 (K. 35) and 12 Dec. 1937 (TIS. 43b). Breeding noted on both sides of the frontier. In autumn single flocks proceed along the valley of the r. Narewka and roads to the forest meadows (e.g. 15 birds were seen in meadows in Sec. 131 by the r. Hwoźna in Sep. 1960, more than 20 birds between Sections 448 and 472 in Sep. 1976 and 9 in Sec. 368 on 23 Oct. 1982 — SB).

Coturnix coturnix (LINNAEUS 1758), not numerous breeding species. Museum specimens collected on 3 Sep. 1938 and 15 Oct. 1949 (K. 54). Later observations: 9 May 1959, 23 July 1973 (SB) and 17 July 1978 (CO). Breeding reported by REI. 18, TIS. 43a and from the eastern part of B. F. by F. D. 67 and D. 71, 77. Arrivals: 5—12 May, departures: in Sep. and singly till mid-Oct. (D. 71).

Phasianus colchicus LINNAEUS 1758 Unsuccessful attempts to introduce this bird were made in 1915—1917 (REI. 18), then in 1958—1959 in the eastern part of the Forest (ROMANOV and KURSKOVA 1963, F. D. 67, D. 71) and in 1960—1962 in the western part (L. NIEROBA, SB). Now no Pheasants live in the wild state on both sides of the frontier in B. F.

Grus grus (LINNAEUS 1758), not numerous breeding species. Museum specimens collected on 26 Oct. 1922, 25 June 1930 (chick) and 25 May 1937 (K. 35, 54). Birds on passage observed and heard by SB and other authors every year from 1950 to 1980. Nesting was noted in the valeys of the rivers Leśna, Narewka and Hwoźna, on both sides of the frontier (F. D. 67). Two-three pairs nest regularly in BNP (CO). Arrivals: 14 March — mid-May, departures: mid-Aug. — mid. Oct. and even later (D. 71, 77 and SB).

Otis tarda LINNAEUS 1758 has not been noted on either side of the frontier for 40 years. D. 71 writes about oral records of the occurrence of the Great Bustard in the Prużany area in 1935—1937, which area is however situated 40 km east of B. F. Another Great Bustard, seen near Dobrowola in 1917, is mentioned by Tis. 43 a,b (after ZIMERMANN). SEEGER saw one (unreliable identification) at the eastern edge of the Forest near the Wielki Ugoł bog on 16 June 1942; not long later this species was observed at the northern edge of the same bog, near Kletno. About 10 Great Bustard on the wing were also seen 10 km north of the edge of the Wielki Ugoł bog during the last war (1942) (Tis. 43b).

Rallus aquaticus LINNAEUS 1758, not numerous breeding species. Museum specimens collected on 28 Apr. 1937 (Tis. 43b) and 26 March 1963. Observed and heard in river valleys on 4, 9 and 12 July 1916 (REL. 16), in 1933, 1934 (K. 35), 10—12 June 1969 (M. N. 76), on 3 May 1967 (SB) and 17 May 1974 (J. WITKOWSKI, pers. comm.). On 12 May 1952 a nest with 10 eggs in it was found in the eastern part of the Forest (F. D. 67), where it arrives about mid-Apr. (D. 71).

Porzana porzana (LINNAEUS 1766), fairly numerous breeding species. Museum specimens collected on 20 Sep. 1921 (K. 35) and 16 Aug. 1963. Observed and heard on 9 Apr. 1969, 7 Apr. 1974, 12 May 1976 (SB) and 10—12 June 1969 (M. N. 76). F. D. 67 observed a bird on 7 May 1959 and found a killed downy chick in the nest of *Aquila pomarina* in August. Tis. 43b also writes about the nesting of this species. Arrivals: in Apr., departures: end of Oct., rarely later (D. 71).

Porzana parva (SCOPOLI 1769), regular migrant. Museum specimen (at Kamieniuki) collected on 10 Sep. 1965 (D. 71). REL. 18 heard and saw this species in the river valleys and SB heard it on the Narewka on 26 Apr. 1969 and 28 Apr. 1970 and saw one on 18 Oct. 1970. Acc. to D. 71, these birds may nest in wet meadows in the river valleys.

Crex crex (LINNAEUS 1758), fairly numerous breeding bird. Museum specimens collected on 17 July 1917 (REL. 18), 23 and 29 June 1921, 31 May 1923 and 25 Aug. 1929 (K. 35). Often heard by REL. 18, K. 35, Tis. 43b, F. D. 67, FISCHER (1961) and D. 71, 77 in peaty meadows in the river valleys, by M. N. 76, SB and CO in fields and by SB and CO in 1—3-year-old forest plantations throughout the nesting season. Arrivals: 7—19 May, departures: from mid-Aug. throughout Sep. (SB and D. 71, 77), though seen also as late as the end of Oct. (D. 71).

Gallinula chloropus (LINNAEUS 1758), fairly numerous breeding species. Museum specimens collected on 14 July 1917 (REL. 18), 2 May 1928 (Tis. 43b) 18 Sep. 1921 (K. 35), 29 Sep. 1951 (F. D. 67). Observed frequently, among

others, on 7 May 1957, 26—28 Apr. 1969, 28 Apr. 1970, 18 Oct. 1970 (SB) and 10—22 June 1969 (M. N. 76). It nests on the old river arms of the Narewka and Leśna and on small water bodies amidst the woodland (SB, CO). Arrivals: 5—30 Apr., departures: Sep. and beginning of Oct. (SB, D. 71).

Fulica atra LINNAEUS 1758, not numerous breeding species. Museum specimens collected on 23 March 1917 (REL. 18), 15 Aug. and 19 Oct. 1923 (K. 35). Observed on ponds at B-ža on 1 Apr. 1952 and 1 Apr. 1970 and 25 June 1979 (SB), ringed on 2 Apr. 1952 (SB) and 9 specimens seen by F. D. 67 on 17 March 1947. It nests regularly on the reservoir Lyatskiye in the eastern part of B. F. (D. 71). Arrivals: mid-March — mid-Apr., departures: mid-Aug. — mid-Sep., rarely later (D. 71).

Charadrius dubius SCOPOLI 1786, rare breeding bird. No specimens in the possession of the museums at B-ža and Kamieniuki. REL. 18 watched these birds on passage. TIS. 43b informs about observations made by ZIMERMANN on the Narewka on 25 and 27 Apr. and 9 May 1918 F. D. 67 noted an arrival on 13 Apr. 1958. VLADYSHEVSKIY (1977) saw single specimens now and again in autumn and D. 71 claims that this species nests on dry grassy hillocks near swamps. Arrivals: after mid-Apr., departures: Aug. No birds observed by present authors.

Pluvialis apricaria LINNAEUS 1758, relatively often encountered migratory bird. Museum specimen collected on 13 Nov. 1935 (K. 35). Observed during autumn migrations in the forefield of B. F. on 3 Sep., 7 Oct., 11, 18 and 25 Nov. 1962, 8 and 17 Nov. (1 bird captured) and 1 Dec. 1963 (SB). Met with in Nov. also in 1967, 1972, 1974 (24 Nov., about 50 birds) and 1975 (SB). F. D. 67 report 1 ♂ killed on 27 Sep. 1952 and D. 71 1 ♂ from Dziki Nikor on 23 Apr. 1966. Spring migrations: Apr., autumn migrations: from Sep. throughout Nov.

Squatarola squatarola (LINNAEUS 1758), very rare visitant. Museum specimen at B-ža collected on 8 Oct. 1935 (K. 35). Unobserved by present authors.

Vanellus gregarius PALLAS 1771. Reported mistakenly from the eastern part of B.F. in the list of 1958 on the basis of an observation in the Lublin region in the previous century (D. 71).

Vanellus vanellus (LINNAEUS 1758), fairly numerous breeding species in river valleys and wet meadows. Museum specimens collected on 10 Aug. 1921, 7 Apr. 1922, 25 Apr. 1928, 3 Aug. 1929 (K. 35), 14 Feb. and 1 June 1958. Nests seen on 12 Apr. 1967 (SB), 18 May 1952 (F. D. 67), 14 May 1957 and 27 May 1952 (with downy chicks). Some volant fledglings were watched on 27 May 1952 (F. D. 67) Arrivals: 28 Feb. — 10 Apr., departures: end of Aug. — Sep. (SB, F.D. 67, D. 71) 77, and even later — 29 Oct. 1969 and 25 Nov. 1962 (SB). M. N. 76 observed juvenile Lapwings migrating westward from 10—22 June 1969.

Calidris temminckii LEISLER 1812, very rare visitant. Specimen collected on 24 July 1930 (K. 35). J. WITKOWSKI (pers. comm.) observed 7 birds on a pond at B-ža on 7 May 1974.

Calidris alpina (LINNAEUS 1758), very rare visitant. Observed in the eastern part of B. F. on 27 Apr. 1957 (F. D. 67, after GAVRIN) and 50—70 birds in the r. Leśna valley on 27 Apr. 1951 and 20—30 on 2 May 1966 (D. 71). It has not been observed by the present authors.

Philomachus pugnax (LINNAEUS 1758). Years ago this was a fairly abundant breeding species on the Dziki Nikor bog and after 1969 only on the Dikoye bog (D. 71, 77). The museum at B-ža possesses 81 Ruffs in breeding plumage collected in the inter-war period, a Reeve taken on 17 May 1929 (K. 35) and a male shot from a flock of about 150 birds in the r. Leśna valley on 26 Apr. 1969 (SB). A Ruff was observed in B-ža Clearing (SB). These birds may nest in the Narew valley in the northern forefield of the Forest. REI. 18 observed them outside the Forest and Tis 43a recorded its nesting in Dziki Nikor. Arrivals: 7—16 Apr., departures: end of Aug. — Sep. (D. 71, 77).

Tringa totanus (LINNAEUS 1758), breeding species. Museum specimens collected on 28 May 1925 and 28 May 1928 (K. 35). Observed near Tofilowce on 12 Apr. 1970 (SB). F. D. 67 reported its arrivals on 4 Apr. 1954, 27 March 1955 and 13 Apr. 1958. D. 71 writes that, although rarely, it nests on the Dikoye bog. REI. 18 did not record it from B. F., Tis. 43a mentions it after K. 35 and observed a breeding pair north of Pruzany.

Tringa nebularia (GUNNERUS 1767), irregular visitant. Reported by F. D. 67 (after GAVRIN): 29 March 1953, 1 Apr. 1954, 14 Apr. 1956 and 5 Apr. 1958 from the valley of the r. Leśna. Small parties of 2—5 birds were met with in August, the last ones on 31 Aug. (F. D. 67). D. 71 and VLADYSHEVSKIY (1977) mention this species on the basis of the data provided by F. D. 67. This species was not observed by the present authors.

Tringa ochropus LINNAEUS 1758, moderately numerous breeding species. Museum specimens collected on 6 and 12 Apr. and 22 May 1917 (REI. 18), 22 May and 20 July 1921, 2 July 1929 (K. 35) and 22 Apr. 1963. Observed on 25 and 26 May 1948, 22—23 May (FISCHER, 1961), 10—22 June 1969 (M. N. 76) and 2 June 1977 (nest — SB): Arrivals: end of March — mid-Apr. (F. D. 67, D. 71 and SB).

Tringa glareola LINNAEUS 1758, irregular visitant. Museum specimens collected by KRAUZE on 3 Aug. 1916 and 1 ♀ on 3 May 1917 (REI. 18), and on 13 May 1942 (Tis. 43b). Observed on 31 March 1953 (SB) and 9 Sep. 1951 (F. D. 67 — after GAVRIN). Acc. to D. 71, they arrive in May and depart at the end of Aug. and beginning of Sep.

Tringa hypoleucos LINNAEUS 1758, moderately numerous migrant and possibly breeder. SB often saw it on a pond at B-ža and on the r. Narewka on 15 Apr. 1966, 20 Apr. 1972, 23 Apr. and 5 May 1975 and 22 July 1970. REI. 18 observed it in the summer of 1917, ZIMERMANN on 27 Apr. and 1 and 5 May on a pond at B-ža (Tis. 43b), GUNDLACH in the summer of 1932 (K. 35) and D. 71 all through the summer, from 15 Apr. to 10 Sep. and though he did not find a nest, the specimens taken during that summer may indicate the nesting of this species.

Limosa limosa (LINNAEUS 1758), rare breeding species. Museum specimens collected on 6 Apr. 1917 (REL. 18), 4 and 9 May 1923 and 25 May 1932 (K. 35). Observed on 12 Apr. 1970 and 6 May 1973 (SB). Its breeding at Dziki Nikor was found by TIS. 43b on 24 May 1942 and reported by F. D. 67. Acc. to D. 71, it nests on the Dikoye bog. Arrivals: mid-Apr., departures: Aug.

* *Limosa lapponica* LINNAEUS 1758, very rare visitant. Observed in the south-western forefield of the forest in the spring of 1916 (REL. 18). which fact is metnioned by F. D. 65 and D. 71. This last author writes that nobody has seen this species in B. F. since then.

Numenius arquata (LINNAEUS 1758), not numerous breeding species. Museum specimen (♀) collected on 19 May 1930 (K. 35). Observed on 6 Apr. 1917 (REL. 18), 22 March 1954, 16 Apr. 1950 (F.D. 67, after GAVRIN), in Dziki Nikor on 7 June 1918 (TIS. 43b) and in a meadow at B-ža on 22 May (FISCHER, 1961). VLADYSHEVSKIY (1966) found a breeding pair in the r. Leśna valley (near Czernaki) and visited the site 8 times from the end of July till Sep. SB watched this species at B-ža and in the meadows adjacent to the Forest on 8 Apr. 1962, 31 March 1964, 26 March 1968 (9 birds), 10 Apr. 1968 and 29 Aug. 1963. Acc. to D. 71, arrivals: end of March — mid-Apr., departures: Sep. Several pairs nested on the Dikoye bog.

Scolopax rusticola LINNAEUS 1758, fairly numerous breeding species. Museum specimens collected on 27 Apr. 1922, 12 May 1930 (K. 35), 6 Apr. 1936 and 8 Oct. 1958. Numerous observations were made from the arrival of the birds (from 15 March throughout Apr.) to their departure in Sep. and Oct. (met. with as late as 17 Nov. in 1974). Rodings were observed from the first days after their arrivals and at the latest on 4 July in 1976 and 5 July in 1960 (SB). A downy chick was observed on 5 July 1960 (SB).

Gallinago gallinago (LINNAEUS 1758), moderately numerous breeding species. Museum specimens collected on 21 May 1932, 22 Aug. 1933 and 25 Oct. 1934 (K. 35, 54). All the authors that write about the birds of B. F. often observed the Snipe during display flights from mid-March to the first days of July. Second broods are mentioned by F. D. 67, who found chicks on 3 and 15 July 1948. Arrivals: mid-March — mid-Apr., departures: from end of Sep. throughout Oct. and even on 4 Nov. in 1962, 3 Nov. in 1972 and 11 Nov. in 1974 (SB).

Gallinago media (LATHAM 1787), not numerous breeding species. Museum specimens collected on 18 July 1929 and 5 Aug. 1923 (K. 35, 54). Met with by REL. 18. TIS. 43a, b, states that it is a breeding bird and so do F. D. 67, who found 3 eggs on 1 July 1950. Observed on 26 March 1961, 23 Apr. 1963, 21 March 1968, 13 Apr. 1972 and 17 Apr. 1974 (SB). Arrivals: from end of March throughout Apr., departures: in Aug. (SB, D. 71); exceptionally encountered as late a 10 Sep. in 1961 (VLADYSHEVSKIY, 1977).

Limnocryptes minimus (BRÜNNICH 1764), irregular visitant. Museum specimen collected on 25 Oct. 1931 (K. 35). REL. 18 mentions it after LÖNS from the Panasiuki region. In his paper TIS. 43a bases himself on the museum specimen.

VLADYSHEVSKIY (1977) observed migrations of this bird from 20 Sep. — mid-Oct. It was not seen by SB and CO.

Burhinus oedienemus (LINNAEUS 1758). Very rare visitant. D. 71 saw a pair in the eastern part of the Forest on 4 May 1950. The museum specimen at Kamieniuki was collected near Volkovysk, 20 km north-east of the Forest on 25 Aug. 1948. K. 35 writes that GUNDLACH observed it in 1930. Tis. 43b mentions the eggs at the B-ža museum (GUNDLACH however claims that they do not come from the Forest) and thinks that this species may occur at the western and eastern edges of the Forest.

Glareola pratincola (LINNAEUS 1766), seen only once by SB on the flood waters of the r. Narewka near Pogorzelle (Statement of the Faunistic Committee No 0428/78 of 12 Dec. 1978).

Stercorarius parasiticus (LINNAEUS 1758). Dr KEMPF from Strasbourg observed an adult on the water body Topiło on 24 June 1979 (TOMIAŁOJCZ, pers. comm.).

Larus minutus PALLAS 1776, visitant. Museum specimen collected on 24 Apr. 1923 (K. 35, 54). F. D. 67 watched breeding near Brześć and passages near Grodno. No data from the Forest since 1923.

Larus ridibundus LINNAEUS 1758, irregular visitant. Museum specimens collected on 24 June 1923 and 28 May 1928 (K. 35). Observed by SB on 2 March 1968, 8 and 13 Apr., 22 May and 31 Oct. 1969, 7—9, 24 and 26 Apr. 1970, 24 March 1974, 17 and 20 March and 7 Apr. 1977. The bird ringed by DOLBIK (1965) in the Forest on 25 May 1953 was found dead in Spain on 5 Dec. 1958. The Black-headed Gull ringed near Riga in Latvia on 28 June 1949 was caught at Hajnówka and released at B-ža by SB on 11 July 1949 (SZCZEPSKI, SZCZEPKA, 1956). F. D. 67 and D. 71 observed small groups of migrating gulls over the r. Leśna from mid-March till mid-May.

Larus fuscus LINNAEUS 1758, irregular visitant. Specimens at museum at B-ža collected on 10 June 1918 (another specimen seen on 5 Oct. 1918) (Tis. 43b) and at Kamieniuki on 18 Apr. 1951 and 24 Apr. 1968 (D. 71). Migrating birds were repeatedly seen over the r. Leśna in the eastern part of the Forest in Apr. and May, more rarely in Sep. and Oct. (D. 71) and 3 specimens were noted by K. WOLK (pers. comm.) in the western part on 9 June 1969.

Larus argentatus PONTOPPIDAN 1763, visitant. SB and CO observed of several or some dozen birds along the r. Narewka valley on 15 Apr. 1963, often in the spring of 1969 and 14 specimens flying south-eastwards in a formation on 3 Sep. 1977. F. D. 67 and D. 71 watched spring passages (March-Apr.) in 1953—1955 and the stay of a small flock on the Dziki Nikor bog from 1—16 May 1949; they also found a dead bird near Pererów on 26 Apr. 1950.

* *Larus hyperboreus* GUNNERUS 1767. The only observation of birds flying eastwards along the r. Leśna valley on 17 May 1977 (SB) needs confirmation.

Larus canus LINNAEUS 1758, very rare visitant. Museum specimens collected

on 28 May 1928 and 5 Dec. 1936 (K. 35, 54). TOMIAŁOJC observed this species on passage at B-ža in Apr. 1979 (pers. comm.).

Chlidonias nigra (LINNAEUS 1758), irregular visitant. Museum specimen taken on 2 June 1921 (K. 35), in Kamieniuki collections 2 ♀♀ and 1 ♂ (F. D. 67). F. D. 67 reported their observation of Black Terns on 27 Apr. 1951. Tis. 43b regards it as migratory, chiefly in spring. At B-ža observed on 27 June 1975 and 29 May 1978, on the reservoir Lyatskiye in the eastern part of B. F. 3 birds were seen on 9 May 1975 (SB, CO). D. 71 frequently watched it over the waters in forest in Apr. and May, at the end of July and in August.

Chlidonias leucoptera (TEMMINCK 1815), never seen nesting in B. F. Museum specimens collected on 18 and 22 May 1928 and 23 May 1930 (K. 35); 1 ♂ at Kamieniuki museum taken from 2 breeding pairs near Dmitrowicze, 7 km away from the Forest, on 17 June 1965 (D. 71). Tis. 43a mentions this tern after GUDLACH (25 May 1942).

Sterna hirundo LINNAEUS 1758. 2 birds observed at B-ža on 27 June 1975 and 2 on 3 June 1977, and on the reservoir Lyatskiye in the eastern part of B. F. 2 specimens on 30 May 1974 and 4 on 9 May 1975 (SB, CO). It probably nests in the eastern part (D. 71). M. N. 76 observed single birds flying over the rivers Narewka and Łutownia from 10 to 22 June 1969. D. 71 watched these birds starting from May in the years from 1966—69; they increased in number in August.

* *Columba livia* GMELIN 1787, named in the list (1958) from the eastern part of B. F.; its occurrence has not been confirmed since then (D. 71).

Columba palumbus LINNAEUS 1758, fairly numerous breeding bird. Museum specimens collected on 2 June 1922 (K. 35) and at Kamieniuki on 15 Apr. 1951 (F. D. 67). It nests throughout B. F. and in the Palace Park at B-ža. Reported by authors from both parts of the Forest. Arrivals: 17 March — beginning of May, departures: Sep. and beginning of Oct., but seen as late as 27 Oct. in 1974. Second broods are possible, as indicated by mating calls at the end of June and in July (SB, CO).

Columba oenas LINNAEUS 1758, not numerous breeding bird. Museum specimens at B-ža collected on 22 June 1922, 17 May and 3 Oct. 1933 (K. 25, 54) and at Kamieniuki on 30 June 1949, 25 June and 27 July 1951 (F. D. 67). Mating calls heard from the arrival of birds (mid-March — Apr.) till 26 June in 1976 and 14 June in 1977. Departures: Aug. and Sep., although may be seen later (27 Oct. in 1975 — SB). REL. 18, Tis. 43b D. 71, 77 and M. N. 76 also observed Stock Doves.

Streptopelia decaocto (FRIVALDSKY 1838), stationary; it has been nesting at B-ža since 1972 (SB) and at Kamieniuki since 1968 (D. 71). Observed as visitant at B-ža on 23 Apr. 1964, 18 May 1966 and 27 Apr. 1970 (SB). Reported from Hajnówka and Brześć since 1960 (RUPRECHT and WALASZ, 1974).

Streptopelia turtur (LINNAEUS 1758), fairly numerous breeding species. Museum specimens collected on 10 Sep. 1923 and 17 May 1928 (K. 35, 54). Arrivals: 25 Apr. — 15 May, departures of local birds: end of Aug. and Sep.

(SB, D. 71). Migrating Turtle Doves often seen together with Woodpigeons as late as Oct. Latest mating calls heard on 31 July in 1975 (SB). Reported also by REL. 18, FISCHER (1961) and M. N. 76.

Cuculus canorus LINNAEUS 1758, moderately numerous breeding species. Museum specimens collected on 9 May 1921, 25 June and 12 Sep. 1928 and 24 June 1930 (K. 35, 54). Arrivals: 2nd half of Apr. departures: end of Aug. and beginning of Sep. (SB). Calls heard from the arrival till the end of June, rarely later (12 July in 1954, 5 July in 1976 — SB). Eggs found in 2 nests of the White Wagtail and in a nest of the Red-backed Shrike. Chicks fed by a White Wagtail were observed three times and once by a Song Thrush (SB). Reported also by REL. 18, TIS. 43b, FISCHER (1961), M. N. 76 and others.

Nyctea scandiaca (LINNAEUS 1758), very rare visitant. Museum specimen collected on 1 Jan. 1929 (K. 35, 54). Observed in B-za Clearing in Jan. 1942 (TIS. 43a, b), recorded from the eastern part of B. F. in the winter of 1929/30 and in Jan. 1962 (D. 71).

Bubo bubo (LINNAEUS 1758), very rare stationary breeding bird. Museum specimens collected on 12 Feb. 1931 and 2 Oct. 1932 (K. 35, 54). In 1888—1902 19 specimens were shot (KARTSEV, 1903). TIS. 43a mentions 5—6 pairs nesting in the Forest. Two chicks were found in a treehole in 1936 (FISCHER, 1961). D. 71 writes that no Eagle Owls were found to breed in the Forest from 1930 to 1960. A female was collected in March 1960, a nest with 2 chicks was found in the eastern part of B. F. in May 1962 and voices were heard near the reservoir Lyatskiye in March and Apr. in 1965 and 1966. REL. 18 reports the trapping of 2 birds on 30 Jan. and 3 March 1917. SB and W. PUCHALSKI heard its voice in Sec. 398 in Apr. 1965. At the same time L. MILKOWSKI heard it in the Browski forest-range (pers. comm.). In the course of the census of owls voices were heard in Secs. 398 and 256 in March 1980 (A. SZWAGEZAK, pers. comm.).

Asio otus (LINNAEUS 1758), not numerous stationary species. Museum specimens collected on 17 Nov. 1921, 5 Aug. 1929 and 16 Nov. 1935 (K. 35, 54). REL. 18 caught 2 birds in Jan. and Feb. 1917. F. D. 67 found a nest with 3 chicks on 22 June 1948 and took 1 juv. ♀ on 20 June 1950. There are 2 ♂♂ and 2 ♀♀ at the museum at Kamieniuki (F. D. 67). TIS. 43b saw this owl in Sec. 370 on 22 Aug. 1918 and a nest with 3 chicks was found in the Palace Park in May 1967 (CO).

Asio flammeus (PONTOPPIDAN 1763), not numerous breeding species. Museum specimens collected on 2 Apr. 1917 (REL. 18), 2 Oct. 1921 (K. 35, 54) and 1 bird was killed near Mochnate in Nov. 1965. There are also eggs of this species at the museum at B-za.

Aegolius funereus (LINNAEUS 1758), very rare stationary bird. Museum specimen taken on 16 Jan. 1929 (K. 35, 54; TIS. 43b). F. D. 67 and D. 71 refer to specimens collected on 19 Feb. 1947, 6 Nov. 1952 and a young one, indicating its nesting there, on 2 Sep. 1948.

Athene noctua (SCOPOLI 1769), not numerous stationary bird. Museum specimens collected on 5 Dec. 1921 (TIS. 43b) and 15 Dec. 1922 (K. 35). There

are 4 ♀♀ and 1 ♂ at the museum at Kamieniuki (F. D. 71). Voice heard in the ruins of a palace in the Palace Park in B-ža Clearing on 25 May 1957. Observed and heard at Krywiatycze in Nov. 1962 and voice heard in Sec. 135 on 20 March 1974 (SB).

Glaucidium passerinum (LINNAEUS 1758), not numerous stationary species. A few specimens obtained on 21 Oct. 1916 ♂, 10 March and 3 May 1917 (REI. 18). Museum specimens collected on 30 Oct. 1922, 12 Sep. 1931 and 4 Apr. 1935 (K. 35, 54). Observed in Sec. 450 in Dec. 1952, in Sec. 398 on 18 Jan. 1957 (BOROWSKI, 1961, 1968), in Sec. 398 in June 1965 (CO) and in other parts of the Forest (SCHÖNN, 1978). The authors from the Byelorussian S. S. R. (F. D. 67 and D. 71) met with this species about 10 times a year. REI. 18, Tis. 43a, K. 35, 54 and other authors regard it as nesting in the Forest.

Surnia ulula (LINNAEUS 1758). Museum specimens collected on 7 Oct. 1916 ♀, (REI. 18), 5 Nov. 1932 and 8 Jan. 1925 (K. 35, 54). REI. 18 and Tis. 43b write on the basis of specimens noted unfrequently in winter that it is a very rare visitant. This information is repeated after them by F. D. 67 and D. 71. The present authors failed to observe this bird.

Strix aluco LINNAEUS 1758, moderately numerous. Observed repeatedly by all authors. It nests both in the Forest and in the Palace Park at B-ža. Numerous specimens in both museums, at B-ža and at Kamieniuki.

* *Strix uralensis* PALLAS 1771, erroneously placed in the list (1958) of birds from the Soviet part, which has been rectified by D. 71.

Strix nebulosa FORSTER 1772, extremely rare. Museum specimens collected on 10 Apr. and 3 May 1929 and 2 May 1930 (K. 35, Tis. 43b; Tom. 72) and 6 specimens from the Oszczepskie forestry-range at the museum at Kamieniuki (D. 71). SZCZERKOWSKI (1930) writes about 2 nests east of B-ža. A bird was observed in Sec. 283 in June 1953 (SB 1961b), mating voices were heard in the eastern part of B. F. (D. 71). One bird seen in May 1987 in Sec. 574 and 602 by TOMIAŁOJĆ (pres. comm.) and other ornithologists.

Tyto alba (SCOPOLI 1769), very rare bird breeding near people's inhabitations. Museum specimen collected on 11 Nov. 1928 (K. 35); there are a few specimens at the museum at Kamieniuki (F. D. 67 and D. 71). F. D. 67 recorded 2 nests found in big lime-trees: with 3 chicks at Raubeck on 25 June 1950 and with a fledgling at Paszuki on 4 Aug. 1951. This species was found nesting in the church building at Hajnówka in July 1967 (RACZYŃSKI and RUPRECHT, 1974). RUPRECHT heard a voice on 7 Sep. 1976 and FEDYK and SB observed 2 specimens by a hole in an oak-tree in the Palace Park at B-ža in Nov. 1976. REI 18 and Tis. 43b reported the presence of the Barn Owl in the Forest but they did not observe its nesting.

Caprimulgus europaeus LINNAEUS 1758, moderately numerous. Museum specimens collected on 3 June 1921, 3 July 1922, 22 August 1923, 3 Aug. 1933 and 12 Oct. 1936 (K. 35, 54). Its breeding is recorded by REI. 18, Tis. 43b, F. D. 67 on 18 June 1952 (4 eggs), SB in July 1965 (1 chick), on 14 June and 28 July 1977 (1 egg each time) and on 2 Aug. 1980 (2 fairly grown chicks).

M. N. 76 heard and saw these birds from 10—22 June 1969. Arrivals: mid-Apr. — mid-May, departures: end of Aug. and Sep., but seen also as late as 9 Oct. in 1969 (SB). Late mating calls were heard on 12 Aug. in 1948 (F. D. 67).

Apus apus (LINNAEUS 1758), fairly numerous breeding species. Museum specimens collected on 10 July 1928, 18 Aug. 1928 and 2 June 1931 (K. 35). Nesting repeatedly (REL. 18, TIS. 43b, F. D. 67, D. 71). Egg laying around 1 July, young ringed at the beginning of Aug. (SB, CO). It nests in holes in pine-trees and in nest-boxes abandoned by young Starlings (SB). Arrivals: 13—28 May (exceptionally on 5 May in 1952 and 8 May in 1962), departures: 19—29 Aug. (SB).

Coracias garrulus LINNAEUS 1758, not numerous breeding species. Museum specimens collected on 3 June 1921, 11 May 1923, 7 Oct. 1935 (K. 35, 54). Nesting reported by REL. 18, TIS. 43b, K. 35, 54, F. D. 67 and D. 71. Observed in the Palace Park at B-ža (CO) and in other places on 20 May 1969, 2 June 1972, 11 May 1974, 18 June 1975, 28 June 1976 and 8 June 1977 (SB). Nesting noted in oak-trees at the eastern edge of B-ža Clearing. Acc. to D. 71, it arrives from the end of Apr. to mid-May and departs from mid-Aug. to mid-Sep.

Alcedo atthis LINNAEUS 1758, not numerous breeding bird. Museum specimens collected on 19 Aug. 1921 and 25 Oct. 1934 (K. 35). Nesting observed by REL. 18, TIS. 43b, D. 71, who saw 5 chicks on the r. Leśna on 3 July 1958 and 7 eggs on the r. Narewka in May 1959, and SB (a nest on the Narewka at the mouth of the r. Hwoźna). Frequently watched by the above-mentioned authors on all the waters of the Forest from its arrival in mid-Apr. till the departure between July and Oct. (D. 71). It was also seen on the ponds at B-ža, whereas in winter F. D. 67 encountered Kingfishers by unfrozen river sections of swift current on 18 Feb. 1949 and 9 Jan. 1952.

Upupa epops LINNAEUS 1758, not numerous breeding species. Museum specimens collected on 26 May 1922, 13 Aug. 1936 (K. 35, 54) and 16 Aug. 1961. A nest was observed in an oak-tree in B-ža Clearing in May 1952 and in July 1955 (SB). F. D. 67 found 8 eggs in a nest on 13 May 1950 and 3 chicks on 7 July 1951. REL. 18 and TIS. 43b also report the observations of birds and their nesting. Voices were heard every year in B-ža Clearing (SB, CO) and at the mouth of the r. Łętownia from 10 to 22 June 1969 (M. N. 76). Arrivals: Apr. and 1st decade of May, departures: end of Aug. and Sep. (D. 71), after this period seen on 2 Nov. in 1967 (SB).

Jynx torquilla LINNAEUS 1758, moderately numerous breeding bird. Museum specimens taken in 1921 and on 12 July 1929 (K. 35). Young were ringed repeatedly (SB — 130 birds from 16 nests, 4—10 in a nest); F. D. 67 observed 13 nests with 8—12 eggs each. REL. 18 and TIS. 43b also write about the nesting of these birds. Mating voices were heard by FISCHER (1961) and M. N. 76 at the mouth of the r. Łętownia from 10—22 June. Arrivals: 5 Apr. — 1 May, departures: Aug. and beginning of Sep. (D. 71 and SB).

Picus viridis LINNAEUS 1758, moderately numerous stationary breeding bird, inhabiting the edge of the Forest. Museum specimens collected on 26 Apr.

1928 and 26 Oct. 1931 (K. 35) and there are 4 ♂♂ and 3 ♀♀ at the Kamieniuki museum (F. D. 67). REI. 18, K. 35, 54, TIS. 43b, F. D. 67 and D. 71 state that it breeds in B. F. Observed by TIS. 43b on 26 May and 7 Dec. 1942 and by SB at B-ža in Nov. 1963, March 1966 and near Witów on 29 May 1977.

Picus canus GMELIN 1788, not numerous stationary breeding species, inhabiting the edge of the Forest. Museum specimens taken on 21 Oct. 1921, 8 Oct. 1929, 3 Apr. 1931 and 30 Oct. 1934 (K. 35, 54). The museum at Kamieniuki is in possession of 7 specimens (F. D. 67). It is regarded as a breeding species by all the authors but only F. D. 67 saw a tree-hole with 7 chicks on 3 June 1952. In winter it was seen in the Palace Park in 1950, 1956 and 1967 and its voice was heard on 5—7 April and 4 June 1977 (SB). A great many observations of other authors have also been published.

Dryocopus martius (LINNAEUS 1758), not numerous breeding species. Museum specimens collected on 10 June 1922, 15 May 1925, 4 May 1929 (K. 35, 54) and 6 Dec. 1957. There are 6 specimens at the Kamieniuki museum (F. D. 67). Acc. to F. D. 67, GAVRIN saw a tree-hole with 4 eggs on 3 May 1952. Nesting was noted by REI. 18, K. 35, 54, TIS. 43b, FISCHER (1961) and D. 71. Mating calls were heard frequently every year (1950—1980). The birds of this species were seen all over B. F. (SB, CO and other authors).

Dendrocopos major (LINNAEUS 1758), fairly numerous breeding species. The most abundant of the woodpeckers. REI. 16, 18 collected 6 specimens. Museum specimens taken on 8 Sep. 1921, 20 March 1928 (K. 35, 54) and 20 Feb. 1958. There are many specimens at the museum at Kamieniuki (F. D. 67). „Drumming” can be heard as early as the first days of January (6 Jan. 1973), it intensifies in March and Apr. till. 10 May. Eggs (4—6) are laid from the end of Apr. to mid-May (SB, CO and other authors).

Dendrocopos medius (LINNAEUS 1758), not numerous breeding bird. REI. 16, 18 took 2 ♂♂ on 8 and 12 Dec. 1915. Museum specimens collected on 12 Oct. 1928 (K. 35) and 15 March 1968. There are 5 specimens at the museum at Kamieniuki (F. D. 67). Breeding recorded by REI. 18, K. 35, 54, TIS. 43b, F. D. 67 and D. 71. Mating calls heard from 2nd decade of Feb. (SB, CO and other authors). The present authors met with it all year round, even in the Palace Park at B-ža.

Dendrocopos leucotos (BECHSTEIN 1803), unfrequent breeding bird. Caught by REI. 18 on 1 Dec. 1915. Museum specimens taken on 15 June 1922, 29 Jan. and 1 Oct. 1928 (K. 35, 54) and 23 Jan. 1958; at Kamieniuki 1 ♂ and 1 ♀ obtained on 20 March (F. D. 67). Nests noted by REI. 18, K. 35, 54, TIS. 43a (22 May and 1 June 1942), FISCHER (1961) (24 May), F. D. 67 and D. 71. Seen in Sec. 131 on 20 March 1974 (SB), 3 juv. in Sec. 369 on 16 June 1974 and 1 bird in Sec. 315 on 10 May 1981 (CO).

Dendrocopos minor (LINNAEUS 1758), not numerous breeding species. Museum specimens collected on 18 Oct. 1922 and 22 Dec. 1928 (K. 35, 54). Nesting noted by REI. 18, K. 35, 54, TIS. 43b, F. D. 67, D. 71; seen every year in the

Palace Park and once in Sec. 369. Mating calls heard from end of Jan. to first days of May (SB, CO).

Picoides tridactylus (LINNAEUS 1758), not numerous breeding bird. Museum specimens collected on 9 March 1922, 3 Jan. 1923, 17 Jan. 1928 (K. 35, 54) and 24 Jan. 1957. REI. 18 took 7 ♂♂, 2 ♀♀ and 2 others birds in Sep. and Nov. in 1916—1917. F. D. 67 captured 4 specimens, M. N. 76 observed female feeding her young (10—22 June 1969) by the r. Narewka, below the mouth of the Hwoźna. The above-mentioned authors report nesting. Tis. 43b writes about STEINFATT'S observation in Sec. 370 on 3 Dec. 1942. SB watched this woodpecker in Sec. 400 (25 Feb. 1970) and in Sec. 130 (7 Feb. 1974).

Riparia riparia (LINNAEUS 1758). Not numerous. Museum specimens collected in 1933 (K. 35). Nests found in the steep banks of the rivers in the Forest (K. 35, 54, F. D. 67, D. 71), usually in colonies of several to more than ten pairs each, in pits left after potato storage at Pogorzelle (1950), in the gravel-pit at B-ža (from 1960), in the excavation for the foundation of a building in Sportowa St. at B-ža (in 1980, SB). Arrivals: end of Apr. and May, departures: end of Aug. and 1st half of Sep. (D. 71).

Hirundo rustica LINNAEUS 1758, nesting in large numbers in all forest villages and on the under-sides of bridges over rivers. Museum specimens collected on 14 May 1928, 8 July 1935 and an albino on 30 Apr. 1923 (K. 35, 54). Breeding from mid-May, 2nd brood found in Aug. Fledglings of the 2nd brood seen on the wing on 2 Sep. 1954 and 23 Sep. 1956 (SB). Tis. 43b reports Swallow from the reserve for European bisons. Other authors' data agree with the present information. Arrivals: mid-Apr. — 10 May, departures of local birds: in Sep., with a peak from 12—16 Sep.; the migrating birds, flying from the east, visited B. F. up to the beginning of Nov.

Delichon urbica (LINNAEUS 1758), fairly numerous birds, breeding in the forest villages. Museum specimens, collected in 1922 and on 12 Oct. 1928 (K. 35, 54). Nesting is reported by REI. 18, K. 35, 54, Tis. 43b, F. D. 67, FISCHER (1961), D. 71 and M. N. 76. Breeding at end of June and beginning of July; however, young were found in a nest as late as 3 Sep. in 1961 (SB, CO). Arrivals in May (till 22), though earlier arrivals were also noted (23 Apr. in 1952, 26 Apr. in 1956 and 24 Apr. in 1957); departures: mostly 22—31 Aug. Later departures were recorded on 2 Sep. in 1970, 4 Sep. in 1968 and 5 Sep. in 1973.

Eremophila alpestris (LINNAEUS 1758), observed only in winter. Museum specimens collected on 7 Feb. 1924 (K. 35), 11 Dec. 1962 (SB) and 2 Nov. 1972 (J. RACZYŃSKI). Mentioned by Tis. 43b after KRAUSE, D. 71 in Oct. 1954, 29 Nov. 1970, 30—31 Oct. and 2 Nov. 1972 (flocks of up to 20 birds) and 9 specimens on 11 Dec. 1977 (SB).

Galerida cristata (LINNAEUS 1758), not numerous. REI. 18 took 5 ♂♂ and 1 ♀ in Nov. 1915. Museum specimen collected on 14 July 1922 (K. 35). Observed, chiefly at the edge of B. F., on 9 Oct. 1952, 16 March 1965, 18 March 1969 and 2 Apr. 1970 (SB). Nesting mentioned by Tis. 43b, K. 35, 54, D. 71. It visits villages in winter (SB, CO, D. 71).

Lullula arborea (LINNAEUS 1758), not numerous breeding species. Museum specimen taken on 3 July 1922 (K. 35, 54). Nesting reported by REI. 18, K. 35, 54, Tis. 43b and also by SB from wood plantations amidst the Forest on 17 Apr. and 17 June 1975. Arrivals: 17 March — 6 Apr., last specimens seen in autumn on 27 Sep. in 1975 and 6 birds on 17 Oct. in 1976 (SB). Times of arrivals and departures given by REI. 18, Tis. 43b. F. D. 67 and D. 71 lie within the range presented above.

Alauda arvensis LINNAEUS 1758, numerous breeding species. Museum specimens collected on 10 July 1922, 23 March and 21 June 1923 (K. 35, 54) and 18 Aug. 1957. Breeding stated by REI. 18, K. 35, 54, Tis. 43b, F. D. 67, D. 71, SB, CO and others. Arrivals: from mid-Feb. throughout March (peak from 1—21 March), departures: end of Sep. — 6 Nov. (peak from 13 — 18 Oct.). After this date Skylarks were seen on 11 Nov. in 1952, 17 Nov. in 1963, 22 Nov. in 1970, 1 Dec. in 1963 and 15 Dec. in 1974 — 2 birds (SB).

Anthus campestris (LINNAEUS 1758), very rare, probably breeding species. Museum specimen collected on 21 July 1928 (K. 35, 54). Reported from the periphery of the Forest by REI. 18, Tis. 43b (after ZIMERMANN, who saw this species at a clearing at B-za in 1915 and near the brickyard on 4 and 16 May 1918; the author himself saw one also near the brickyard on 30 May 1942) and M. N. 76 (at the southwest edge of B. F., 10—22 June 1969). K. 35, 54, F. D. 67 and D. 71 consider it to be a breeding bird in B. F. Acc. to D. 71, arrivals: 2nd half of Apr., departures: mid-Aug. — mid-Sep.

Anthus trivialis (LINNAEUS 1758), moderately numerous breeding species. Museum specimens collected in 1932 (K. 35, 54), on 22 Apr. 1942 (Tis. 43a) and 10 May 1961. Nesting in well-lighted places (e.g. young forest plantations) and at the edge of stands. Nests were found by REI. 18, K. 35, 54, Tis. 43b, F. D. 67, D. 71, M. N. 76 and by SB on 4 May 1974 and 3 June 1977. The mating songs heard on 26 June 1976 and 3 July 1975 (SB) suggest 2nd broods, which agrees with D. 71's observations.

Anthus pratensis (LINNAEUS 1758), not numerous breeding species. Museum specimens collected on 21 Aug. 1928 (K. 35, 54) and 24 March 1943. Breeding is reported by REI. 18, K. 35, 54, Tis. 43b (nest on the r. Narewka), FISCHER (1961) and D. 71 (twice in a season). Observed by the above-mentioned authors and on 16 May 1974 by SB in the meadows on the r. Narewka. Arrivals: acc. to F. D. 67, end of March, acc. to D. 71 till mid-Apr., departures: end of Aug. — mid-Oct. (D. 71).

Motacilla flava LINNAEUS 1758, not numerous. Museum specimens collected on 1 and 23 June 1921 (K. 35, 54). Nesting noted by REI. 18, K. 35, 54, Tis. 43b, F. D. 67, D. 71, SB and CO. Repeatedly observed by those authors and in addition by SB and CO on 11 Apr. 1971, 4 May 1975, 24 Apr. and 12 May 1976. Arrivals: from end of March (REI. 18) throughout Apr. (SB, CO, F. D. 67, D. 71), departures: mid-Aug. — mid-Oct. (D. 71).

Motacilla alba LINNAEUS 1758, moderately numerous. Museum specimens collected on 31 March 1922, 4 April 1922, 25 Apr. 1935 (K. 35, 54) and 24 Apr.

1961. Nests observed by REI. 18, K. 35, 54, TIS. 43b, F. D. 67, D. 71, M. N. 76, SB. and CO. SB observed the feeding of a Cuckoo chick by a White Wagtail. Arrivals: 18 March — 5 Apr. with a peak from 22—31 March, the earliest observation on 10 March in 1975. Departures: 3rd decade of Sep — mid-Oct, later encountered in 1974 (26—28 Oct.) and 1962 (7 Nov.) (SB).

Lanius collurio LINNAEUS 1758, moderately numerous. Museum specimens collected on 20 Aug. 1921, 10 June 1928, 13 Aug. 1929 and 20 Aug. 1935 (K. 35, 54). Nesting noted many times (REI. 18, K. 35, 54, TIS. 43b, F. D. 67, D. 71). Chicks were ringed (SB, CO). Arrivals: 30 Apr. (1969) — 26 May (1965, 1975), with a peak from 10—20 May, departures: from mid-Aug. throughout 2nd decade of Sep. (SB, D. 71).

Lanius senator LINNAEUS 1758. There is a possibility of its exceptional visits, as it has been recorded from a place in Podlasie about 40 km south-west of the Forest (WOLK, 1967). The museum specimen was taken near Kiwaczyn, about 20 km east of the Forest on 15 Oct. 1938 (K. 54, TIS. 43a).

Lanius minor GMELIN 1788, extremely rare. Collected on 21 May 1918 (TIS. 42), 2 July 1922, 2 May 1924, 24 Aug. 1939 (K. 35, 54). Nesting recorded from the eastern periphery of the Forest (D. 71) and from the region of Siemiatycze (WOLK, 1967). Observed near Dzik Nikor (TIS. 43a). Arrivals: end of Apr. — mid-May, departures: mid-Aug. — mid-Sep. (D. 71).

Lanius excubitor LINNAEUS 1758, rare, probably breeding species. Museum specimens collected on 19 March 1916, 4 Jan. and 8 Apr. 1917 (REI. 18), 19 Feb. 1923, 20 May 1924, 20 June 1929, 14 Oct. 1933, 19 Oct. 1934 (K. 35, 54) and 16 Feb. 1959. Encountered all year round, more frequently in Nov. and Dec. than in March and Apr. and very rarely during its breeding season — 15 May 1955 (SB, CO) and 24 May 1957 (FISCHER 1961).

Oriolus oriolus (LINNAEUS 1758), not numerous. Museum specimens collected on 19 May 1922, 14 June 1923 and 2 Aug. 1928 (K. 35, 54). Nesting found by REI. 18, TIS. 43b, K. 35, 54, F. D. 67, D. 71 SB and CO. Arrivals: 2 May (1952) — 2 June (1965) with a peak from 5—12 May. Departures: Aug. — mid-Sep. Last song heard on 6 Aug. in 1975 (SB, CO).

Sturnus vulgaris LINNAEUS 1758, breeding bird, very numerous in the clearings and at the edge of the Forest. Museum specimens taken on 8 May 1922, 27 March and 4 May 1923, 21 May 1928, 16 Oct. 1935 (K. 35, 54), 10 and 21 June 1958. 2nd brood occurs rarely. Many birds were ringed (SB, CO) and reports of recoveries arrived from Belgium, Netherlands, Spain, Portugal, Italy, France and Sardinia. Arrivals: end of Feb. — mid-March, although some birds happen to arrive at the end of March or at the beginning of April. After breeding (2nd decade of June) the Starlings leave the Forest and migrants from the east appear as late as the beginning of Sep. and fly till the 2nd decade of Oct. Small flocks can still be seen in mid-Nov.

Garrulus glandarius (LINNAEUS 1758), moderately numerous breeding species. Museum specimens collected on 28 Sep. 1922, 19 Apr. 1928 (K. 35, 54) and 6 Apr. 1958. Mating songs heard on 24 March 1963, 29 Feb. 1968 and 7 March

1977. Chicks were ringed (SB, CO). In the years of poor crops of acorns these birds nomadize in the west (F. D. 67 and D. 71).

Pica pica (LINNAEUS 1758), not numerous stationary species. Museum specimens collected on 14 May 1922, 23 Apr. 1923 (K. 35, 54) and 26 July 1958. More numerous at the edge of the Forest, where they nest (REL. 18, TIS. 43a, D. 71, SB). From 1969 onwards, Magpies were seen visiting B-ža Clearing, where they have been nesting since 1974 (SB).

* *Pyrrhocorax pyrrhocorax* (LINNAEUS 1758). Reported by K. 35, 54 on the basis of observations made on 18 Apr. 1931 and 6 March 1933, when it was seen in an apple-tree in the garden adjacent to a house and by TIS. 43b, who quotes an observation made by KRAUZE and RICHTER on 13 May 1942. TOM. 72 thinks that in those observations a Black Woodpecker must have been taken for Chough.

Nucifraga caryocatactes (LINNAEUS 1758), not numerous stationary species. Museum specimens collected on 19 Apr. 1928, 18 Oct. 1928 and in 1934 (K. 35). A young bird fed by an adult was seen on 15 Aug. 1972 and the voice of a young Nutcracker was heard on 14 Sep. 1974 (CO), which is mentioned by WOLK (1977b). D. 71 found a nest with 4 chicks on 13 June 1955 and another with eggs in May 1958. Nesting was supposed by REL. 18 and TIS. 43b and observed by F. D. 67 and M. N. 76. The Siberian form *N. c. megarhynchos* BREHM 1823 visits B. F. in some years; a specimen for the museum was collected in Nov. 1968 (CO).

Corvus monedula LINNAEUS 1758, moderately numerous breeding bird at Hajnówka and in the forefields of the Forest. Museum specimens collected on 3 Aug. 1928, 8 Dec. 1934 (K. 35) and 9 March 1958. In B-ža Clearing and inside the forest complex seen on passage together with Rooks in spring: in March and Apr. (exceptionally on 19 May in 1973), and in autumn: at the end of Sep., in Oct., more rarely in Nov. and exceptionally on 21 Dec. in 1975 (SB, CO). Other authors give very similar data.

Corvus frugilegus LINNAEUS 1758, moderately numerous breeding bird at Hajnówka and all round the Forest, in which it occurs only as a visitor. At Hajnówka Rooks nest in a colony of about 50 pairs. D. 71 writes that near the Forest there are 7 colonies south of Kamieniuki. Museum specimens collected on 9 Dec. 1921, 25 March, 1922, 23 Feb. and 23 June 1928 (K. 35, 54). Rooks fly over the Forest in flocks numbering up to 2000 birds, eastwards in spring, from the end of Feb. throughout March and more rarely in Apr., westwards in autumn, in Oct. and Nov. (exceptionally later on 22 Dec. in 1971, 21 Dec. in 1975 and even 13 Jan. in 1974). They sometimes stop at B-ža to feed or for the night (SB, CO).

Corvus corone LINNAEUS 1758, in the Forest rare breeding species, more frequent during passages of single or several birds or their flocks. Museum specimens collected on 1 Dec. 1915 (REL. 16b) and 24 March 1932 (K. 35). ZEIRLITZ (1920—1921) and TIS. 43b observed a nest in Sec. 398 in B-ža Clearing, where in May 1980 TOMIAŁOJĆ (pers. comm.) also found a nest in nearly the same

place. These Crows migrate in the flocks of Rooks eastwards in spring, from 17 Feb. to 18 March in 1974 (exceptionally on 27 Apr. in 1975), and westwards in autumn, from 9 Oct. to 16 Nov. (1974) and once even on 6 Dec. in 1961 (SB, CO). F. D. 67 and D. 71 found Hooded Crows breeding in groves close to the Forest and give similar dates concerning migration.

Corvus corax LINNAEUS 1758, moderately numerous. Museum specimens collected on 1 March 1928, 10 Feb. 1933 and 16 Oct. 1945 (K. 35, 54). A nest with young ones almost capable of flight was found at the cemetery at B-ža on 12 May 1976 and other nests in the north-eastern part of the Palace Park in 1977 and a pine-tree in Sec. 369 in 1978. Flocks up to 80 birds were met with gathered at carrion and of 150—200 birds in the refuse dump near Hajnówka. Nesting was reported by REL. 18, K. 35, 54, TIS. 43a, b, FISCHER (1961), F. D. 67 and D. 71; all the authors observed mating flights. M. N. 76 watched them over the r. Łutownia.

Bombycilla garrulus (LINNAEUS 1758), moderately numerous migratory species. Museum specimens collected on 12 Nov. 1923, 15 Jan. 1929 (K. 35, 54), 27 March 1958 and 10 March 1959. Autumn passages from 18 Oct. (exceptionally 30 Sep. in 1954) throughout November, single small flocks are encountered all through the winter; they return north at the end of March and in Apr. A flock of more than 10 specimens was met with as late as 12 May in 1951 (SB, CO). The data about the passages of Waxwings given by REL. 18, TIS. 43b, F. D. 67 and D. 71 lie within the above-presented time limits.

Cinclus cinclus (LINNAEUS 1758). Museum specimen (at Kamieniuki) collected on 3 March 1970. Observed for the first time in Nov. 1968 (D. 71). In the western part of the Forest watched and photographed in Sec. 314 at Orlówka on 7 Feb. 1975 (PIOTROWSKI, 1975).

Troglodytes troglodytes (LINNAEUS 1758), fairly numerous breeding species. Museum specimens collected on 10 Oct. 1922 and 15 Dec. 1933 (K. 35, 54). 1st brood in May, the 2nd at the end of June and beginning of July (SB, CO). REL. 18, K. 35, 54, TIS. 43b, F. D. 67 and D. 71 also write about breeding. M. N. 76 watched Wrens from 10—22 June 1969. Arrivals: mid-March — mid-Apr., departures: end of Aug. to last days of Oct. Single specimens spend winter near bogs (27 Nov. 1976, 13 Jan. 1973, 18 Feb. 1957, 1 March 1961 and 2 March 1975).

Prunella modularis (LINNAEUS 1758), not numerous breeding bird. Museum specimens collected on 1 July 1930 (K. 35), 3 Apr. 1937 (TIS. 43b) and 15 March 1979. Observed many a time (SB, CO), nests with 4 eggs found on 9 May 1967 (SB, shown to him by GOTZMAN) and 15 May 1975 (TOMIAŁOJĆ — pers. comm.). D. 71 observed two nests, TIS. 43b and K. 35, 54 state breeding. Arrivals: mid-March — mid-Apr., departures: Sep. and Nov. (SB).

Locustella luscinioides (SAVI 1824), rare. M. N. 76 found these birds in the valleys of the rivers Narewka, Łutownia, Hwoźna and Leśna from 10 to 22 June 1969. Their song was repeatedly heard in the valley of the r. Leśna on 6 May and 8 June 1973, 27 June 1974, 16—18 May, 24 July and 1—5 Aug. 1975, 27 Apr.,

7 and 27 May 1976 and 17 May and 17 June 1977 (Secs. 574—602) (SB). And so they arrive at the end of Apr., whereas there are no records concerning their departures. The dates of summer observations suggest the nesting of this warbler in B. F.

Locustella fluviatilis (WOLF 1810), moderately numerous. Mating songs of males were heard in the valleys of the rivers and even in the Palace Park at B-ža every year (1939—1977), from 5 May in 1969 (the earliest record) to 4 July in 1975 (the latest), which indicates the possibility of two broods (SB, CO). M. N. 76 also heard mating songs (10—22 June 1969). K. 35, 54, Tis. 43a, b and D. 71 write about nesting. Arrivals in May, departures not observed (SB).

Locustella naevia (BODDAERT 1783), not numerous. Its song was heard by the r. Leśna on 30 June 1963, 12 and 23 May 1971, 27 June and 4 Aug. 1974 and in the Palace Park at B-ža on 12 May 1975 (SB). K. 35, 54 and D. 71 write about nesting and REI. 18 heard mating calls. Arrivals: about mid-May, no records of departures (SB, D. 71).

Acrocephalus paludicola (VIEILLOT 1817), not numerous. GUNDLACH'S observation in 1933 is mentioned by K. 35, 54 and ZIMERMANN'S on the ponds at B-ža (17 May 1918) reported by Tis. 43b. There are six museum specimens, one of them at Kamieniuki (F. D. 67). K. 35, 54 and D. 71 write about nesting. Acc. to D. 71, these birds arrive in the 1st half of May and depart from the beginning of Aug. to mid-Sep.

Acrocephalus schoenobaenus (LINNAEUS 1758), not numerous breeding species. Museum specimen collected on 1 June 1930 (Tis. 43b). Singing was heard and a male seen in the valley of the r. Leśna on 1 June 1976 (SB together with WOLK). ZEIDLITZ (1920—1921) and D. 71 state that these birds breed in B. F. Acc. to D. 71, arrive at the end of Apr. and the beginning of May and depart in Aug. and 1st half of Sep.

Acrocephalus palustris (BECHSTEIN 1798), moderately numerous breeding species. Mating songs were heard in the valleys of rivers and in the Palace Park at B-ža from 6 May (1974) to the beginning of July (3 July 1959). Latest autumn observation on 10 Oct. in 1962 (SB, CO). REI. 18 and D. 71 report its breeding and Tis. 43b and FISCHER (1961) heard singing. Arrivals: in May, departures: till the beginning of Oct. (SB, D. 71).

Acrocephalus scirpaceus (HERMANN 1804), not numerous. Museum specimen taken on 20 July 1933 (K. 35, 54). Songs heard on the Narewka and Leśna on 21 June 1975 and 17 May 1977 (SB). K. 35, 54 and D. 71 write about nesting in river valleys. Arrivals: in May, no records of departures.

Acrocephalus arundinaceus (LINNAEUS 1758), moderately numerous in river valleys. Museum specimen collected on 1 June 1930 (K. 35, 54). Arrivals observed on 26 Apr. 1952, 26 Apr. 1953 and 28 Apr. 1970; singing heard all through May and up to 17 and 19 June in 1977 and 27 June in 1974 (CO, SB). Breeding reported by K. 35, 54, Tis. 43b, FISCHER (1961) and D. 71; singing heard also by M. N. 76 on the rivers from 10—22 June 1969.

Hippolais icterina (VIEILLOT 1817), moderately numerous. Arrivals: 8—23

May, with a peak between 10 and 13 May. Late songs heard on 21 June 1975, 3 June 1976 and 1—4 July 1977 (SB). Icterine Warbler nests in orchards and parks at B-ža and at the edge of the Forest in river valleys (REI. 18, K. 35, 54, Tis. 43b, F. D. 67, D. 71, SB and CO). Songs heard by M. N. 76 (10—22 June 1969). Departures: end of July and in Aug. (D. 71).

Sylvia nisoria (BECHSTEIN 1785), not numerous breeding bird. Museum specimens collected on 4 Sep. 1922 and 9 March 1939 (K. 35, 54). Nesting found by REI. 18, K. 35, 54, Tis. 43a, b and FISCHER (1961); SB ringed chicks in the Palace Park on 8 July 1984. M. N. 76 heard its song from 10 to 22 June 1969. Arrivals: 1st half of May, departures: in Aug. and 1st half of Sep. (SB, D. 71).

Sylvia borin (BODDAERT 1783), moderately numerous. Eggs in the possession of the museum collected on 12 June 1928 (K. 54). Late songs (15 June 1974, 26 June 1975, 2 June 1977, 8, 15 and 18 July 1976) indicating 2nd broods (SB). K. 54, D. 71 and SB mention it as nesting. ZEIDIITZ (1920—1921), Tis. 43b, FISCHER (1961) and M. N. 76 heard its singing. Arrivals: 3rd decade of Apr. and 1st half of May (exceptionally on 10 Apr. in 1967) (SB). Departures: end of July and Aug. (D. 71).

Sylvia atricapilla (LINNAEUS 1758), moderately numerous. Museum specimens collected on 4 July 1921, 15 June 1932, 16 Aug. 1933, 15 Sep. 1933 (K. 35, 54) and 12 Aug. 1963. Nesting noted by REI. 18, K. 35, 54, Tis. 43b, FISCHER (1961), F. D. 67 and SB. SB ringed chicks. The second songs of males, heard from 22 June to 12 July, evidence second broods (SB). M. N. 76 often heard singing Blackcaps from 10 to 22 June 1969. Arrivals: 30 Apr. — 15 May (earlier observations on 27 Apr. in 1970 and later ones on 20 May in 1955 and 1968). Departures observed on 18 and 30 Sep. 1970 and 18 and 28 Sep. 1971 (SB). The times of arrivals and departures given by other authors lie within the range presented above.

Sylvia communis LATHAM 1787, not numerous breeding species. Its eggs are stored in the museum (K. 54). Late songs heard on 27 June 1974 and 30 June 1963 (SB). Nesting observed by REI. 18, Tis. 43b, K. 54, D. 71 and F. D. 67. M. N. 76 heard its song only once in the period from 10—22 June 1969. Arrivals: 6 May (1973) — 25 May (1976). Departures, acc. to D. 71: from mid-Aug throughout Sep.

Sylvia curruca (LINNAEUS 1758), not numerous. Museum specimen collected on 1 June 1930 (K. 35, 54). Males' songs heard from 25 Apr. (1975) to 12 May (1971) (earlier observations on 19 Apr. in 1967 and 20 Apr. in 1968, later ones on 24 May in 1977). Males' songs on 24 June (1976) and 21 July (1977) suggestive of second broods (SB). K. 35, 54, Tis. 43a, D. 71 and SB consider the Lesser Whitethroat to nest in B. F. Departures, acc. to D. 71: mid-Aug. — end of Sep.

Phylloscopus trochilus (LINNAEUS 1758), moderately numerous breeding species. REI. 18 collected 2 specimens. Arrivals: 19 Apr. (1971, 1973) to 11 May (1969) (later observations on 13 May in 1958, 17 May in 1975, 29 May and 2 June in 1977). Mating songs noted again on 30 June and 13 July 1974, they suggest second broods (SB). Breeding found by REI. 18, Tis. 43b (6 eggs on

25 May 1918), D. 71 and SB. M. N. 76 often heard and saw this bird (10—12 June 1969). Departures: end of Aug. and Sep. (D. 71, 77, VLADYSHEVSKIY 1966, SB).

Phylloscopus collybita (VIEILLOT 1817), numerous. Museum specimens collected on 29 Aug. 1921, 10 May 1922 and 8 July 1928 (K. 35, 54). The singing of males around 1 July indicates second broods. Chicks were ringed (SB). REI. 18, K. 35, 54, TIS. 43b and D. 71, 77 (2 broods) report its nesting. M. N. 76 frequently encountered it from 10—22 June 1969. Arrivals: 26 March (1973) to 27 Apr. (1955), exceptionally on 13 May in 1971. Departures: end of Aug. — 17 Oct. (after this date seen as late as 23 Oct. in 1952). The data concerning arrivals and departures given by other authors agree with those given in the present paper.

Phylloscopus sibilatrix (BECHSTEIN 1793), numerous breeding species, the most numerous of the genus *Phylloscopus*. Museum specimen collected on 28 July 1922 (K. 35, 54). Nesting was observed repeatedly and chicks were ringed (SB). Arrivals: 20 Apr. (1970) — 6 May (1935) (earlier observations on 16 Apr. in 1968 and 13 Apr. in 1972). Departures: Sep. till mid-Oct.

Phylloscopus trochiloides (SUNDEVALL 1837). Noted by TOMIALOJÓ et al. (1984) in 1977 and on 31 May 1978, when the former showed SB a singing bird in the Palace Park. Species new to B. F. Its nesting in B. F. is possible.

Regulus regulus (LINNAEUS 1758), moderately numerous breeding species. Museum specimens collected on 10 Oct. 1922, 16 Oct. 1935 (K. 35, 54). REI. 16a, 18 captured 4 ♂♂ and 2 ♀♀. Acc. to ZEIDLITZ (1920—1921), LEMM got another 15 specimens. Observed all year round (SB, CO). Mating songs heard from 20 March to the end of May (exceptionally earlier, on 17 March in 1959) and again around 1 July, which suggests second broods (SB, CO). Other authors provide similar data.

Regulus ignicapillus (TEMMINCK 1820), rare breeding species. Museum specimen collected in June 1928 (K. 35, 54). Songs heard on 4 Apr. 1975 (SB) and several days later by K. WOLK, as well as on 16 May 1974 (J. WITKOWSKI). Earlier observed by REI. 18 (16 Oct. and 19 Nov. 1915). K. 35, 54 and D. 71 claim that it nests in B. F. TOM. 72 mentions its presence in the Forest after K. 35.

Ficedula hypoleuca (PALLAS 1764), fairly numerous. Museum specimens collected on 24 June 1922, 15 Aug. 1928 and 15 May 1930 (K. 35, 54). Nests observed by REI. 18, K. 35, 54, TIS. 43a, b, DOLBIK (1965), F. D. 67, D. 71), also in nest-box for Great Tits (SB). Second broods noted on 24 June 1963 and 22 June 1976 (SB). M. N. 76 observed this species often from 10 to 22 June 1969. Arrivals: 2nd decade of Apr. — 5 May (earlier: 4 Apr. in 1953). Departures: mid-Aug — mid-Sep. (D. 71).

Ficedula albicollis (TEMMINCK 1815), fairly numerous. Museum specimen collected on 8 May 1935 (K. 54). Nesting recorded by REI. 18, K. 35, 54, TIS. 42, 43b, FISCHER (1961), M. N. 76, D. 71, and TOM. 72. Late singing heard on 22 June 1976 and a nest with chicks found on 24 June 1963 may evidence

second broods (SB). It nests in shallow tree-holes and in nest-boxes in the Palace Park (SB). Arrivals: 14 Apr. — 5 May (earlier observations on 10 Apr. in 1962 and 8 Apr. in 1975), departures: around 1 Sep. (SB, CO).

Ficedula parva (BECHSTEIN 1794), occurs in small numbers in oak-hornbeam woods. REL. 18 collected a specimen on 20 Apr. 1916 and observed these birds in 1917; ZEIDLITZ (1920—1921) found a nest in 1918. Nesting reported by TIS. 43ab, FISCHER (1961), and D. 71. The singing of males, extended in time (from their arrival throughout August and even on 2 Sep. in 1958 and 10 Sep. in 1959) indicates two broods (SB). Volant fledglings were ringed on 29 June 1963. Arrivals: 7—24 May (exceptionally on 2 May in 1959). Departures: Sep. and Oct. (SB).

Muscicapa striata (PALLAS 1764), not numerous. Museum specimens collected on 20 July 1929 and 11 Aug. 1933 (K. 35, 54). Nesting noted by REL. 18, K. 35, 54, TIS. 43b, F. D. 67, FISCHER (1961), D. 71 and M. N. 76 (at B-ža and in river valleys from 10 to 22 June 1969). The number of birds in B. F. varies from year to year. Sometimes there are two broods. Chicks were ringed (SB, CO). Arrivals: 4—18 May (earlier observations on 10 Apr. in 1963, 13—14 Apr. in 1954, 28 Apr. in 1952 and 30 Apr. in 1969); departures: end of Aug. and in Sep. (D. 71, SB).

Saxicola rubetra (LINNAEUS 1758), moderately numerous. Museum specimens collected on 20 May 1922, 21 July 1928 and 22 June 1930 (K. 35, 54). The Whinchat nests in raised riverside meadows (REL. 18, K. 35, 54, TIS. 43b, D. 71), more rarely in forest plantations up to 5 years of age (SB). It was observed by M. N. 76, chicks and young birds were noted by SB and CO. Arrivals: 27 Apr. (1954) — 17 May (1977) — earlier observed on 11 Apr. (1956 and 1963), 12 Apr. (1967) and even 1 Apr. (1973). Latest autumn observations: 19 and 25 Sep. (1971) and 24—26 Sep. (1975).

Oenanthe oenanthe (LINNAEUS 1758), rare. Museum specimens collected on 3 June 1923, 18 Nov. 1930 (K. 35, 54) and 13 May 1942 (TIS. 43a). Fairly often observed by the roads at the edge of the Forest, in May 1965 seen in B-ža Clearing (SB). REL. 18, K. 35, 54 and D. 71 write about its nesting in B. F. Arrivals, acc. to F. D. 67: 6 Apr. in 1953, 1 Apr. 1954 and 13 Apr. 1955; departures, acc. to D. 71: in Aug. and 1st decade of Sep.

Phoenicurus ochruros (GMELIN 1774), not numerous. Museum specimens collected on 28 July 1922 and 1 Sep. 1930 (K. 35, 54). Males' second singing, heard on 22 June 1975 and 2 July 1977, are indicative of 2nd broods. They nest chiefly in settlements (SB), but do not avoid the forest (REL. 18, K. 35, 54, TIS. 43ab, F. D. 67 and D. 71). Arrivals: end of March and Apr. (earlier observation on 3 March in 1955), departures: Sep. till 5 Oct.

Phoenicurus phoenicurus (LINNAEUS 1758), rare. K. 35, 54 observed it in 1933 and 1934. REL. 18, K. 35, 54, TIS. 43b, F. D. 67 and D. 71 report its breeding in B. F. Five chicks were ringed at B-ža on 26 June 1976 (SB). Arrivals, acc. to F. D. 67, on 19 Apr. in 1952 and 22 Apr. in 1953; departures were not noted.

Erithacus rubecula (LINNAEUS 1758), numerous. Museum specimens collected

on 6 and 8 July 1928, 23 Aug. 1930 and 27 Apr. 1939 (K. 35, 54). The males singing between 25 June and 12 July and the nest with eggs in it found on 16 July 1959 evidence 2nd broods (SB, CO). Nesting reported by REI. 18, K. 35, 54, Tis. 43b, F. D. 67 and D. 71, 77. M. N. 76 only observed these birds. Arrivals: 23 March (1977) — 15 Apr., departures: Sep. and Oct. A singing male was heard as late as 10 Oct. in 1975 and a male was observed on 7 Jan. in 1971.

* *Luscinia megarhynchos* (C. L. BREHM 1831), mentioned by K. 54 on the basis of a nest with eggs found by ZAWADZKI. This seems to be a mistake, for the eastern boundary of its distribution extends nearly 300 km west of the Forest (Tom. 72).

Luscinia luscinia (LINNAEUS 1758), moderately numerous. Museum specimen collected on 23 May 1922, 2 June 1932 and 3 June 1939 (K. 35, 54). The intensity of mating songs increases from the end of May till mid-June, which might indicate 2nd broods. At B-ža 5—8 pairs nest in the Palace Park every year. Less frequent in thickets along rivers and wet alderwoods inside the forest complex. Chicks were ringed (SB, CO). Breeding reported by REI. 18, K. 35, 54, Tis. 43b, F. D. 67 and D. 71. M. N. 76 only observed birds (10—22 June 1969). Arrivals: 21 Apr. (1953) — 12 May (1970), earlier observed on 8 Apr. in 1965, 2 and 5 Apr. in 1971 and 15 Apr. in 1973. Departures were not noted.

Luscinia svecica (LINNAEUS 1758), rare. Museum specimens collected in B-ža Clearing on 28 July 1921 (K. 35, 54). Singing male observed by the r. Hwoźna on 28 Apr. 1968 (SB). Nesting reported by Tis. 43b, F. D. 67 and D. 71. F. D. 67 write about the arrivals on 12 Apr. in 1952, 6 Apr. in 1953 and 5 Apr. in 1956, the hatching of chicks on 30 May in 1952 and their flying from the nest on 8 June 1952. Departures, acc. to D. 71, from mid-Aug. to beginning of Oct. REI. 18 and K. 54 think that it is only a migrant in B. F.

Turdus pilaris (LINNAEUS 1758), not numerous. Museum specimens collected on 18 Oct. 1928 and 23 Apr. 1930 (K. 35, 54). These birds are fairly abundant as migrants, occurring in flocks of 300—500 specimens, in Oct. and Nov. Small flocks feeding on mistletoe were seen from Dec. to Apr. (SB, CO). Nesting reported by K. 35, 54, Tis. 43b and D. 71.

Turdus merula LINNAEUS 1758, moderately numerous. Museum specimens collected on 22 June 1921 and 15 May 1928 (K. 35, 54). Egg-laying — to the end of Apr., volant young seen on 11 May in 1954, 17 May in 1955 and 1962 and later. Chicks were ringed. Males' songs heard at the end of May and at the beginning of June and in July suggest 2nd broods (SB, CO). Nesting reported by REI. 18, K. 35, 54, Tis. 43b, F. D. 67, D. 71 and DOLBIK (1965). M. N. 76 only observed these birds. Arrivals: 12 March (1967) — 8 Apr. (1958), earlier observations on 28 Feb. in 1975, 2 March in 1959 and later on 13 Apr. in 1963. Departures: Sep. till 7 Oct. Some specimens wintered by unfreezing marshes (8 Dec. 1975, 13 Jan. 1973, 1, 12 and 24 Jan. 1976 and 8 Jan. 1977).

Turdus iliacus LINNAEUS 1766, moderately numerous. Museum specimens collected on 17 Apr. 1931 (K. 35, 54) and in May 1967. Redwing nests in the Palace Park at B-ža and in river valleys. The first flying young were encountered

on 19 May in 1962. The second brood occurred around 1 July. Chicks were ringed (SB, CO). Nesting was noted for the first time by MRUGASIEWICZ and WOLK (1958), next by WOLK (1960), JABŁOŃSKI (1963), BOROWSKI (1962, 1968), K. 54 and TOM. 72, whereas REI. 18, TIS. 43b, F. D. 67 and D. 71 write nothing about nesting. M. N. 76 observed only passages of these thrushes. Arrivals: last decade of March and in Apr. (earlier arrivals on 12 March in 1967 and 16 March in 1975), departures: in Sep.

Turdus philomelos C. L. BREHM 1831, numerous, the most abundant of thrushes. Museum specimens collected on 9 May and 29 June 1921, 8 July 1928 (K. 35, 54) and 11 May 1976. The earliest record of egg-laying (4) is from 22 Apr. 1971. The first flying young birds were seen on 3 May in 1972. In June males resume mating songs. Starting from mid-July second broods leave the nests. Chicks were ringed (SB, CO). REI. 18, K. 35, 54, TIS. 43b, F. D. 67 and D. 71, 77 report breeding; FISCHER (1961) and M. N. 76 only observed these birds. Arrivals: mid-March — 12 Apr. (earlier arrivals on 5 March in 1962, 6 March in 1975, 11 March in 1967 and 12 March in 1977). Departures: end of Sep. and in Oct. (earlier departure on 9 Sep. in 1962 and later ones on 2 and 4 Nov. in 1969).

Turdus viscivorus LINNAEUS 1758, not numerous breeding species. Museum specimens collected on 12 Oct. 1928, 27 Apr. 1930, 18 Oct. 1934 (K. 35, 54) and 14 Aug. 1957, 14 and 19 Dec. 1957 and 4 Feb. 1958. Late singing, indicating the possibility of second broods, was noted on 14 June 1977 (SB, CO). REI. 18, K. 35, 54, TIS. 43b, FISCHER (1961), F. D. 67 and D. 71 recorded nesting. M. N. 76 only observed these birds. Arrivals: usually from 10 March to 15 Apr. Earlier, singing was heard on 23 Feb. in 1977 and 2 March in 1960; after that period, on 21 Apr. in 1974. Departures: in Oct. Single or several birds were seen on 2 Dec. 1962, 13 Dec. 1969, 28 and 30 Dec. 1976 and 9 Jan. 1977.

Aegithalos caudatus (LINNAEUS 1758), not numerous stationary species. Museum specimen collected on 25 Jan. 1930 (K. 35). Foraging flocks of 5—15 birds were observed all year round (SB, CO). In 1960 a pair bred their progeny in the Palace Park (SB). REI. 18, K. 35, 54, TIS. 43b and D. 71 (2 broods) report nesting. M. N. 76 only observed it.

Parus palustris LINNAEUS 1758, moderately numerous breeding species. Museum specimen taken on 22 March 1928 (K. 35, 54). Repeatedly observed, also in the Palace Park. The first mating songs heard on 30 Jan. and 2 Feb. in 1953, 4 March in 1970, 2 Feb. and 4 Apr. in 1975, 22 Feb. in 1976 and 5 Feb. in 1977. Birds were ringed in the Palace Park (SB, CO). REI. 18, K. 35, 54, TIS. 43b, D. 71 report breeding (D. 71 2 broods in season). M. N. 76 only observed.

Parus montanus CONRAD VON BALDENSTEIN 1827, not numerous breeding species. Museum specimens collected on 13 Sep. 1921 and 5 Oct. 1922 (K. 54). Mating songs heard on 26 Feb. 1972 and 23 Feb. 1975 and calling voices all year round. Willow Tit nests chiefly in forest along rivers (SB). ZEIDLITZ (1920—1921) writes that in a Berlin museum there is a series of specimens from B-ža. K. 54 states that it nests at B-ža and FISCHER (1961) mentions it after ZĄBEK.

TIS. 43b observed this species near Białystok and M. N. 76 watched a pair in Sec. 275 (middle course of the r. Lutownia). D. 71 thinks this bird is here a winter migrant.

Parus cristatus LINNAEUS 1758, moderately numerous breeding species. Museum specimens collected on 28 June 1932, 10 Nov. 1936 (K. 35, 54). The Crested Tit is met with chiefly in pine woods, where it nests. Mating songs heard on 25 Feb. 1972, 23 Feb. and 4 Apr. 1975, 20 March 1974, 18 and 26 Feb. and 6 March 1976. In winter it nomadizes in mixed flocks of tits, visiting also oak-hornbeam woods (SB, CO). REL. 16, 18 (and ZEIDLITZ 1921 after him) noted it roaming about in winter flocks of tits and so did TIS. 43b, FISCHER (1961) and M. N. 76 met with it in pine woods in summer. Its nesting is given by K. 35, 54 and D. 71 (2 broods).

Parus ater LINNAEUS 1758, not numerous breeding species. Museum specimen collected on 12 March 1928 (K. 35, 54). Encountered in pine and mixed forests. Mating songs heard on 25 Apr. 1976, in May, on 22 June 1976 and even on 7 July in 1977, which evidences 2nd broods. In winter it nomadizes with other tit species (SB). REL. 18, K. 35, 54 and D. 71 report breeding of this bird. TIS. 43b, FISCHER (1961), F. D. 67 (after GAVRIN) and M. N. 76 state only its occurrence.

Parus caeruleus LINNAEUS 1758, not numerous. Museum specimen collected on 21 Jan. 1928. Mating calls heard as early as Jan. (8 Jan. in 1972) and in Feb. and March, also on 26 June in 1976. It nests in pinewoods, more rarely in other woods, also in nestboxes. Adult birds and chicks were ringed. In winter it nomadizes in mixed flocks and happens to forage in reeded areas. Sometimes it raises a 2nd brood (SB, CO). REL. 16, 18, K. 35, 54, TIS. 43b, F. D. 67 and D. 71 confirm its breeding. The birds observed regularly by M. N. 76.

Parus major LINNAEUS 1758, numerous stationary species. Museum specimens collected on 25 Feb. 1928 (K. 35, 54) and 12 March 1958. Mating songs heard as early as 13 Jan. in 1973 and even in Dec. (21 Dec. 1977), to the end of June (2nd broods). First clutch of 8—12 chicks, second of 5—7. The ringing of birds showed westward winter migrations of some specimens and their return in March (SB, CO). The authors quoted in connection with other tits state the nesting of the Great Tit in B. F. M. N. 76 only observed the birds.

Sitta europaea LINNAEUS 1758, moderately numerous. There are several specimens in the museum, one collected on 13 March 1928 (K. 35, 54). Mating songs heard from the end of Jan., more rarely earlier, but it was heard even on 4, 18 and 27 Dec. in 1974 and on 21 Dec. in 1977. The Nuthatch nests in tree-holes and nest-boxes in forests of all types at the end of Apr. and beginning of May. Adult birds and chicks were ringed (SB, CO). Nesting stated by REL. 16, 18, K. 35, 54, TIS. 43b, F. D. 67 and D. 71. Nuthatches were regularly observed by M. N. 76.

Certhia familiaris LINNAEUS 1758, not numerous. Museum specimens collected on 7 March 1922 and 16 Feb. 1928 (K. 35, 54). Mating songs were heard from 6 Feb. in 1955 and 4, 12 and 20 Feb. in 1977 till the beginning of May. The latest song was noted on 18 May in 1975 and 1977. It nests in tree-holes, chinks

and under bark; in winter joins nomadizing flocks of tits (SB, CO). In 1961 a nest was found in the Park of the B. N. P. Management Office at B-ža (SB). REI. 16, 18, K. 35, 54, D. 71 and FISCHER (1961) assert its nesting in B. F. TIS. 43b and M. N. 76 only observed the birds.

Certhia brachydactyla C. L. BREHM 1820, very rare. TIS. 43b points out its presence on the basis of a specimen obtained by KLEINSCHMIDT at Cichowola in the north-western part of B. F. on 25 Nov. 1918. FISCHER (1961) puts forward the undocumented statement that Short-toed Tree Creeper nest in B. F., which statement is quoted by TOM. 72. REI. 18 only supposes that this species may be found in B. F., for it is known from Łomża and Suwałki.

Remiz pendulinus (LINNAEUS 1758), rare. Museum specimen collected by GUNDLACH (K. 35, 54). TIS. 43a,b mentions the finding of nests on the r. Leśna in June and July 1942, which information is repeated by FISCHER (1961). L. MIŁKOWSKI found some nests on the r. Narew in 1972 and 1976 and PI-ROZNIKOV (pers. comm.) on the r. Leśna in 1973. REI. 18, F. D. 67 and D. 71 saw no specimens of this species in B. F.

Passer domesticus (LINNAEUS 1758), numerous species, breeding exclusively in towns and villages. Museum specimens collected on 30 Nov. 1921, 28 March 1922, 26 July 1923 (albino) and 25 Feb. 1928 (K. 35, 54). It nests in recesses of buildings and often occupies the nests of House Martins and nest-boxes. In 1972 and 1973 5 pairs of House Sparrows built nests in mistletoe at a height of 8—10 m above the pavement in a birch at B-ža. It rears 2 broods yearly (SB, CO). TIS. 43a writes about an albino and about the House Sparrows in the reserve for European bison. RUPRECHT (1967) describes a hybrid between the House Sparrow and the Tree Sparrow.

Passer montanus (LINNAEUS 1758), moderately numerous in towns and villages. Museum specimens collected on 24 Nov. 1921, 16 Oct. 1928 (K. 35, 54) and 18 Feb. 1958. It nests in tree-holes and nestboxes (2 broods in a season). In autumn its flocks forage on the sward of *Polygonum aviculare* (SB, CO).

Fringilla coelebs LINNAEUS 1758, very numerous. Museum specimens collected on 4 Apr. and 10 May 1922, 4 Oct. 1928 (K. 35, 54) and 23 June 1958. It nests in all forest communities, less numerously in swampy forests, from the end of Apr. throughout June. The late mating singing (8 Aug. 1974, 1—4 Aug. 1975, 21, 26 June and 1 July 1976 and 1—3 July 1977) and the finding of nests indicate 2nd broods (SB, CO). Arrivals: 3 March (1961) — 10 Apr. (1969). Departures: mid-Sep. — mid-Oct. Wintering males were observed on 23 Feb. 1962, 1 Dec. 1963 and 26 Dec. 1970.

Fringilla montifringilla LINNAEUS 1758, fairly numerous at migration season. Museum specimens collected on 16 Oct. 1928, 20 Oct. 1934 (K. 35, 57) and 13 June 1958. Observed at B-ža on 17—20, 23, 27 March and 1 and 7 Apr. 1964, 11 Apr. 1968, 7 Apr. 1969, 30 March and 24 Apr. 1970 and 2 May 1971. A male was ringed on 1 Jan. 1979 (SB). Spring and autumn passages were observed by REI. 18 on 2 and 3 Oct. (1 specimen each time) and 17 Apr. 1917 and by TIS. 43b, F. D. 67 and D. 71. K. 35, 54's information about nesting is erroneous.

Serinus serinus (LINNAEUS 1766), not numerous. Specimens at Kamieniuki museum collected on 3 and 9 June 1950, in 1951 and on 2 June 1952 (F. D. 67). No specimens at B-ža museum. Singing first heard at B-ža in 1950, nesting found for the first time in 1952 (SB). Since then some dozen pairs have been nesting every year. Late mating songs of males heard on 5 June 1974, 29 July and 5 Aug. 1975; they may indicate 2nd broods (SB, CO). GAVRIN (1951) reports that a Serin reached Kamieniuki from the Brześć side (where it had appeared before). F. D. 67 and D. 71 give these data after GAVRIN and add their own observations. Arrivals: end of Apr. and in May (earlier arrivals on 9 Apr. in 1963, 18 Apr. in 1968 and 11 Apr. in 1972 — SB, CO). Departures: end of Aug. and in Sep.

Carduelis chloris (LINNAEUS 1758), moderately numerous. REL. 18 collected 3 ♂♂ and 3 ♀♀ in Nov. 1915; other specimens were taken on 24 June 1922, 22 Apr. 1928, 20 July 1929 (K. 35, 54) and 16 March 1958. Birds were observed all year round and ringed in winter from Dec. to March. The Greenfinch nests in various biotopes. Mating songs were heard from the end of March. It breeds in May, although on 21 July 1977 mating songs indicative of 2nd broods were heard near a new nest (SB, CO). On 26 Apr. 1967 a dead bird ringed in Bosnia on 12 Nov. 1965 was found at B-ža (CO). The number of birds varied much from year to year (SB, CO). REL. 16, 18, K. 35, 54, F. D. 67 and D. 71, 77 write about its nesting in B. F.

Carduelis spinus (LINNAEUS 1758), not numerous. Museum specimens collected on 2 March and 2 and 3 Dec. 1922, 3 Feb. 1928 (K. 35, 54) and 9 Feb. 1958. Single pairs were observed in summer, flocks numbering up to 500 birds in winter. The Siskin nests in pine forests. Mating songs were heard from 8 Apr. in 1953 and 23 Apr. in 1969 and 1975, but no nests were found. Large flocks feeding in roadside alders in winter were probably arrivals from the north (SB, CO). K. 35, 54, F. D. 67 and Tis. 43b state its nesting in B. F., which REL. 18 and D. 71 only surmise. M. N. 76 observed it in June 1969.

Carduelis carduelis (LINNAEUS 1758), moderately numerous. Museum specimens collected on 11 June 1922, 22 June 1928, 20 July 1929 (K. 35, 54) and 13 July 1958. It was found present all year round. Mating songs heard from the end of March. The Goldfinch builds its nest after the tree has got leaved. The late mating songs (17 June and 25 July 1975, 4 July 1977) and fledglings able to fly met with late in the season indicate 2nd broods. The Goldfinch most often nests in built-up areas and along river valleys (SB, CO). Many authors state its nesting in B. F.

Acanthis flavirostris (LINNAEUS 1758), very rare winter visitant. Museum specimens at B-ža collected in Jan. 1973 and at Kamieniuki on 13 Feb. 1953 and 16 Feb. 1956 (F. D. 67 and D. 71). A flock of about 30 birds was observed in a field near Stary Kornin on 4 Dec. 1977 (SB). On 8 Jan. 1976 WOLK and RACZYŃSKI (pers. comm.) observed a flocks of 20 birds in B-ža Clearing.

Acanthis cannabina (LINNAEUS 1758), not numerous. Museum specimen collected on 22 Apr. 1923 (K. 35). It nests in villages and in dry forest plantations

and clumps of junipers, and often has two broods in a year. A nest with eggs was found on 4 June 1976 and 4 chicks were ringed around 1 July in 1977 (SB, CO). Earlier, REL. 16a, 18, K. 35, 54, Tis. 43b, F. D. 67 and D. 71, 77 stated its nesting in B. F. Arrivals: 9 March (1975) — 8 Apr. (1958), departures: 3 Sep. — 21 Oct. (1962).

Acanthis flammea (LINNAEUS 1758), moderately numerous but sporadic visitant. Museum specimen collected on 4 Feb. 1922 (K. 35). Flocks foraging on alder-trees were observed from 5 Nov. (1972) to 7 March (1970). Above 10 birds were ringed in Feb. and March 1956 (SB). The data about nesting presented by K. 54 are incorrect (SB, CO). Winter visits recorded by REL. 18 and D. 71.

Carpodacus erythrinus (PALLAS 1770), moderately numerous in river valleys and wet meadows studded with shrubs. There is a specimen at the museum at Kamieniuki (F. D. 67). A nest with 4 eggs was found on 7 June 1963 and another with chicks on 19 June 1977 (GOTZMAN, 1964; TOM. 72). Singing males were heard up to 12 July in 1976, which would suggest 2nd broods or a considerable delay in the first. REL. 18 writes clearly about the absence of these birds from B. F. Neither are they mentioned by K. 35, 54. Tis. 43b heard a singing male on 20 and 24 May 1942 outside the Forest. FISCHER (1961, after GUNDLACH) writes about singing heard on 20 May and F. D. 67 heard it on 22 May 1951. D. 71 thinks that it is a migrant from mid-May till mid-June. M. N. 76 (10—22 June 1969) observed this species frequently. Since the fifties it has been inhabiting the Forest area in increasing numbers (SB, CO). Arrivals: 1 May (1961) — 28 May (1969, 1977), departures: Sep. and Oct. (SB).

Pinicola enucleator (LINNAEUS 1758), very rare winter visitant. The Pine Grosbeak was found on 20 Feb. 1929 (specimens at B-za museum — K. 35, 54), 2 Nov. 1923, 20 Feb. 1930 (Tis. 43b), 28 Jan. 1958 (specimens at Kamieniuki museum — D. 71) and 2 Feb. 1959 (F. D. 67, after SHKLYAROV, 1961). No own observations.

Loxia pytyopsittacus BORKHAVSEN 1793. Museum specimens collected on 13 Dec. 1921 (2 birds) and 18 Nov. 1930 (2) (Tis. 42). K. 35, 54 mentions the specimens taken on 13 Dec. 1928 and 18 Nov. 1930 and thinks that this crossbill breeds in B. F. REL. 18 (and ZEIDLITZ 1920—1921 after him) writes that RÜBNER took a specimen from a large flock on 29 April 1917. F. D. 67 mention a specimen collected by GAVRIN on 29 Sep. 1950, whereas TOM. 72 quotes REL. 18 and maintains that this bird nests sporadically all over Poland. SB and CO did not find its nests but think that it may nest in B. F. in isolated cases.

Loxia curvirostra LINNAEUS 1758, not numerous, more abundant in the years of good of spruce seeds. Museum specimens collected on 28 Dec. 1921, 18 Jan., 3 Feb. and 28 Aug. 1929 and 11 Sep. 1930 (K. 35, 54, who also reports its nesting). Foraging flocks were observed in the Palace Park on 28 Dec. 1952, 2 Jan. 1953, 19 and 25 Sep. and 5 Nov. 1972 and 19 and 25 Nov. 1976. Alarm calls were heard in Sec. 423 on 19 Oct. and 25 Nov. 1976 but no nest was observed. Flocks of some dozen birds were watched on 7, 17 and 23 March and 11 and 26 May

1977 (SB). A singing male was noted in the Palace Park on 10 May 1981 (CO). REI. 18 collected above ten specimens and maintains that the Common Crossbill nests in B. F. It is also mentioned by TIS. 43b, FISCHER (1961), F. D. 67, D. 71, TOM. 72 (after SOKOŁOWSKI, 1958) and M. N. 76.

Pyrrhula pyrrhula (LINNAEUS 1758), not numerous stationary breeding population. Museum specimens collected on 13 Feb. 1928, 15 Feb. 1933 (K. 35, 54, who also reports its nesting), 18 Feb. 1958 and 3 Jan. 1959. In winter a moderately numerous migrant. Autumn passages from end of Oct. (19—21) to mid-Dec. Departures for the north from beginning of March to 8 Apr., exceptionally on 29 Feb. in 1976. It nests in thickets in river valleys (e.g. in Secs. 340 and 369 in birch-trees at a height of 3—5 m). A bird ringed at B-ža on 12 March 1956 was recovered near Moscow in Feb. 1958 (SB). K. 35, 54, F. D. 67, D. 71 and TOM. 72 (after K. 35 and SOKOŁOWSKI, 36) think that the Bullfinch breeds in B. F. Observed on winter passages by REI. 18 and TIS. 43b.

Coccothraustes coccothraustes (LINNAEUS 1758), moderately numerous. Museum specimens collected on 4 June 1921, 9 Feb. 1922, 1 July 1928, 4 Feb. 1932 (K. 35, 54) 14 and 24 July 1958. More abundant in the years of good crops of hornbeam seeds. It nests in oak-hornbeam forests, in hornbeams at a height of 8—12 m. In the Palace Park some Hawfinches nested in a larch and other trees at a height from 1 to 12 m and higher (TIS. 43b, SB, CO). REI. 18 only observed it. K. 35, 54, D. F. 67 and D. 71 asserted its nesting in B. F.; and so did M. N. 76, who observed this species at 7 sites and found a nest in Sec. 601. SB ringed chicks.

Emberiza calandra LINNAEUS 1758, not numerous. Museum specimen collected on 7 Dec. 1928 (K. 35), there being 7 specimens in the museum at Kamieniuki (F. D. 67). A singing male was observed in B-ža Clearing on 27 May 1974 (and before). It occurs more frequently in the forefields of the Forest, e.g. Mochbate on 13 March 1972 (SB). The information given by K. 54 about its nesting in all forest associations except swampy coniferous forests is a mistake, since Corn Bunting requires dry fields and meadows (D. 71). Acc. to D. 71, it arrives at the end of March and beginning of April, departs from mid-Aug. throughout Sep. and has two broods. REI. 18 and TIS. 43b observed it outside the Forest and mention ZIMERMANN's record of 22 June 1915. SB and CO heard singing males but did not find any nests.

Emberiza citrinella LINNAEUS 1758, moderately numerous. Museum specimens collected on 9 March 1922, 3 and 13 April 1923, 23 June and 15 Aug. 1928 (K. 35, 54), 25 Nov. 1957, 18 Feb. and 5 July 1958. It can be observed all year round (SB, CO). The Yellowhammer nests, acc. to all authors from REI. 18 to D. 71, in drier, slightly shrubed parts of river valleys, in villages and forest plantations. Mating songs of males were heard from 21 Feb. (1976) to 29 July (1977), which indicates two broods. The greatest intensity of singing fell in March and Apr. (SB, CO).

Emberiza hortulana LINNAEUS 1758, not numerous. Museum specimen collected on 15 June 1928 (K. 35). The earliest arrival was recorded on 19 March

(1973) and in April. Males' latest songs were heard on 4 June in 1974. The Ortolan Bunting nests in the Palace Park and at the edge of the strict reserve in BNP. REI. 18, K. 35, 54, TIS. 43b, FISCHER (1961) and D. 71 state its nesting in B. F., while F. D. 67 and M. N. 71 only observed the birds and heard their songs.

Emberiza schoeniclus (LINNAEUS 1758), not numerous. Museum specimens collected on 13 July 1922, 22 May and 22 June 1930 and 8 Oct. 1935 (K. 35, 54). Nesting in B. F. was noted on 27 June 1974 and 28 June 1975 and, besides, stated by REI. 16, 18, K. 35, 54, TIS. 43b, F. D. 67 and D. 71. M. N. 76 observed this bird in the valleys of the rivers Narewka and Leśna from 10—22 June 1969. Arrivals: 9 March — 8 Apr., departures: 8 Sep. — 31 Oct.

* *Calcarius lapponicus* LINNAEUS 1758, as mentioned by F. D. 67 and D. 71, was entered on the list of the birds in the eastern part of B. F. (1958) on the basis of a specimen, which was allegedly stored at the museum at B-ža, but this is not true (SB, CO). TOM. 72 infers the possibility of the visits of Lapland Buntings to B-ža Clearing, even though they have not been seen there so far, from the fact reported by TISCHLER (1941) and other authors that some birds of this species were encountered in Mazuria and Pomerania.

Plectrophenax nivalis (LINNAEUS 1758), not numerous visitant. Museum specimens collected on 12 Feb. 1929, 3 Feb. 1930 (K. 35, 54), 30 Jan. 1957 and 3 March. 1958. Small flocks of 7—15 birds were observed in B-ža Clearing and in the forefields of the Forest from 11 Nov. in 1952 and 14 and 20 Nov. in 1977 till the end of Feb. (SB, CO). REI. 18, TIS. 43b, F. D. 67 and D. 71 met with Snow Buntings in analogous autumn-winter seasons.

V. THE PRESENT STATE OF KNOWLEDGE OF THE BIAŁOWIEŻA FOREST AVIFAUNA AND ITS ZOOGEOGRAPHICAL CHARACTERISTICS

As can be seen from the list of birds, the occurrence of 226 avian species in the area of the Białowieża Forest has been sufficiently documented so far, this number forming about 60 per cent of the fauna of Poland. The total consists of 51 stationary, 115 breeding, 26 migratory (18 regular and 8 irregular) and 34 visiting (11 sporadic and 23 rare) species (Table I). 221 bird species have been given from the western part of the Białowieża Forest (the following visitants to the eastern part have not been found here: *Phalacrocorax carbo*, *Cygnus cygnus*, *Melanitta fusca*, *Calidris alpina* and *Tringa nebularia*). Altogether 212 bird species have been recorded from the eastern part (the following species occurring in the western part have not been observed here: *Locustella luscinioides* and *Remiz pendulinus* among the breeding species, *Gavia immer* among the migrants and *Gavia stellata*, *Podiceps griseigena*, *Branta bernicla*, *Circus macrourus*, *Squatarola squatarola*, *Calidris temminckii*, *Glareola pratincola*, *Stercorarius parasiticus*, *Larus canus*, *Surnia ulula* and *Phylloscopus trochiloides* among the visitants).

Literature provides information about further 15 species, which however cannot be included in the list of the avifauna of the Białowieża Forest, because they were observed outside the study area (*Nycticorax nycticorax*, *Otis tarda*, *Mergus serrator*, *Vanellus gregarius*, *Larus minutus* and *Lanius senator*) or because the lack of evidences or precise descriptions does not permit their inclusion (*Anser erythropus*, *Aquila heliaca*, *Limosa lapponica*, *Larus hyperboreus*, *Pyrhcorax pyrrhcorax*, *Luscinia megarhynchos*, *Columba livia*, *Strix uralensis* and *Calcarius lapponicus*). *Phasianus colchicus*, mentioned in literature, occurs only on a raising farm in the eastern part of the Forest.

Table I

Faunal elements in the avifauna of the Białowieża Forest (acc. to Voous, 1962)

Faunal element	Total	Number of species of which			
		breeding		on migration	visiting
		stationary	migratory		
Palearctic	85	27	43	9	6
Holarctic	34	7	13	6	8
European	27	5	21	—	1
Euro-Turkestan	24	3	21	—	—
Arctic	11	—	—	3	8
Siberian	9	2	4	3	—
Old World	11	1	7	2	1
Siberio-Canadian	6	3	—	1	2
Turkestan-Mediterranean	4	1	1	1	1
Cosmopolitan	4	1	2	—	1
Indo-African	4	1	1	—	2
Mediterranean	1	—	1	—	—
Neartic	2	—	—	1	1
Palearktic-mountainous	1	—	—	—	1
Paleartic-Piedmont	1	—	1	—	—
Turkestan	1	—	—	—	1
Tibetan	1	—	—	—	1
Total	226	51	115	26	34

The list of species and respective literature show the unsatisfactory state of knowledge of the avifauna of the area under discussion, notably in respect of the abundance of particular species and their nesting in it in the latest decade. This last information is especially important to the estimation of danger threatening these species. It is still possible to complement the list of the avifauna of the Białowieża Forest with rare migrants and visitants and exceedingly rare breeders.

Table I shows the proportion of particular faunal elements on the basis of Voous's (1962) division. The avifauna of the Białowieża Forest, compared with that of Poland or Europe, is characterized by the large number of its birds of prey (17 breeding species) and owls and by the occurrence of numerous species typical of forests of a primeval nature and biotopes showing little interference of man. Here belong the Hazel Hen, Capercaillie, Three-toed Woodpecker, White-backed Woodpecker, Red-breasted Flycatcher, Black Stork and Crane. Regarding the Booted Eagle and Great Grey Owl, the Białowieża Forest is the only breeding area known from Poland and in the case of the latter it is its southernmost breeding locality (GRGTE, 1949).

VI. CHANGES IN THE AVIFAUNA CAUSED BY HUMAN INTERFERENCE AND THE PROBLEMS OF ITS CONSERVATION

Human activity carried on in the Białowieża Forest for many years has caused a considerable transformation of the environment and plant cover (FALIŃSKI, 1968) and neither is it indifferent to the avifauna of this region. And thus it came to the formation of clearings for settlements, the appearance of extensive fields, meadows and pastures as well as felling areas and forest plantations, which favoured the penetration of birds characteristic of open areas into the Białowieża Forest. This group can be exemplified by the Partridge, Quail, Skylark, Ortolan, Lapwing, Whinchat, White Wagtail and Hoopoe. The House Sparrow, Tree Sparrow, Swallow, House Martin, White Stork, White Wagtail, Barn Owl and Starling have settled in the areas of forest villages. The Starling has only just begun to colonize the edges of the stands without entering their inside. A relatively short time ago the Black Redstart and Redstart appeared in the villages and the Serin and Collared Turtle Dove did in the last three decades. However, the Rook and Jackdaw still avoid nesting in clearings inside the Forest, in which the Magpie, Hooded Crow, Ortolan, Yellowhammer and Crested Lark already nest, though in very small numbers.

The water and marsh species, e.g. the Snipe, Corncrake, Meadow Pipit, Black-tailed Godwit, Curlew, Moorhen and Spotted Crake progress along the deforested river valleys into the interior of the Forest. The Goldfinch and Greenfinch begin to colonize the edges of the forest in these valleys and Swallows are met with on the rivers Narewka and Leśna, far from the human settlements.

In the parks of the English type at Białowieża (Palace Park and that of the Management Office) a number of birds have changed their behaviour, e.g. Jays were seen seeking food in litter-baskets. In the winter of 1975 a Nutcracker was staying in the vicinity of the museum and it showed no fear of people (WOLK, 1977b). Just close to the railway station and a train standing there a Black Stork forages on the Białowieża ponds at noon and on the same ponds a few pairs of Mallards raise their young every year. Even in the strict reserve,

along the most frequented tourist routes Chaffinches forage on the path and let people approach them to a distance of 5—6 m.

The drainage of the extensive marshes of Dziki Nikor (ca 4000 ha), made in the fifties, brought about the disappearance of the Cranes and Ruffs in the eastern part. Moreover, changes took place in the plant cover of the high peatbogs and swampy coniferous forests and, together with the appearance of a new predator — racoon dog, caused a rapid decrease in the number of Capercaillies (DATSKEVICH and VAKULA, 1980).

Different changes have been induced by the construction of the Lyatskiye reservoir. Such birds as the Pochard, Tufted Duck and Heron, previously known as migrants in the Forest, now nest in it. According to an unconfirmed personal communication, 2 pairs of Graylag Geese nested there for a year. Certain migratory species, once very rare, e.g. gulls and terns, now appear more frequently, flying eastwards along the River Narewka towards the end of summer, in autumn and in spring. Some Soviet ornithologists observed the Cormorant, unreported from the Forest before and closely connected with big water bodies.

A decrease in the number of the birds of prey, in particular those of the Sparrow Hawk and Goshawk was due to the shooting of these birds by shooters and to the changes in the biotope resulting from the drainage of the extensive bogs in the eastern part of the Forest. The use of chemical pesticides in the clearings inside the Forest and in its vicinity may have been an additional factor. All these things together led to a distinct decrease in the number of all the birds of prey without exception and the complete disappearance of the Peregrine Falcon.

The completion of the construction of the water reservoir Siemianówka, about 2500 ha in area, in the valley of the River Narew is expected to occur after 1990. Its presence will most likely cause a general rise in the number of water birds and considerable specific changes. There is a great probability that some water birds, now migratory, will nest in that area and, what is more, a breeding colony of Common Herons may come to be there and some birds of prey like Marsh Harrier, Osprey and even White-tailed Eagle may build their nests.

And so the intensifying human interference with all the resultant specific changes constitutes an increasing threat to the avifauna of the Białowieża Forest. Most endangered are the species characteristic of primeval and natural forests, those connected with marshy habitats and raptors, both diurnal birds of prey and owls.

The recently protected areas, namely the Białowieża National Park and the partial reserves in the managed part of the forest are decidedly too small, e.g. to extend protection over the whole territory of the Short-toed Eagle or Spotted Eagle, to say nothing of the Golden Eagle. As a result, it seems necessary:

a) to carry on the forestry in the managed part of the Białowieża Forest in such a way as to maintain the typical multispecific and multi-

storeyed character of the forest. This is why the rules of forest management imposed by the decree of the Minister of Forestry and Wood Industry of 1975, updated in accordance with the present state of knowledge, must be observed without fail. Old trees with holes in their trunks, especially the species of minor importance to industry (lime, hornbeam, aspen) should be left untouched as the breeding sites of birds;

b) to ban the shooting of Capercaillies and to protect their leks and breeding sites, by preventing timber cutting and all sorts of work requiring the use of mechanical equipment in their proximity. It is also advisable to start the breeding of these birds in aviaries and to set free the young birds thus obtained;

c) to protect the localized nests of the Black Stork and birds of prey (Short-toed Eagle, Booted Eagle, Spotted and Lesser Spotted Eagles, Eagle Owl, Great Grey Owl and possibly Peregrine Falcon and Golden Eagle) by establishing protective zones. In the zone of strict protection (within a radius of 300 m) it should be forbidden to make any changes in the environment (felling, construction of a high stand of vantage, etc.). Only measures of forest protection in the stands up to age class III outside the breeding season (Aug. — Dec.) are permissible. Felling, logging, timber transport, soil cultivation and shooting are forbidden in the zone of partial protection (within a radius of 500 m). In emergency, work connected with forest management and conservation may be carried out only with the assent of the Provincial Officer of Nature Conservancy. Tourist traffic must be completely stopped within a radius of 500 m and posters put up to say "Animal Refuge". Furthermore, a ban should be imposed on taking photographs and making films of the nests of the birds of prey and Black Stork and their observation from a hide without a written permit given by the Provincial Officer of Conservancy. The site of the nests of birds of prey and Black Storks should be regarded as strictly confidential and revealed only to the authorities of the Nature Conservancy and, with the assent of the State Council of the Conservation of Nature, to select scientific institutions;

d) to secure the inviolability of the hydrological conditions of the Forest by introducing a prohibition against any land reclamation work and water-course regulation in the forest complex and in its immediate neighbourhood. As the construction of the Siemianówka storage reservoir on the River Narew close to the northern edge of the Forest is under way, it should be prevailed upon the designing engineers and contractors to find such solutions as to minimize its noxious effects on the stand of the Białowieża Forest;

e) to endeavour after putting a ban on the shooting of birds of prey in the eastern part of the Forest, which would also have effect on their number in the western part. Finally, such forms of plant cultivation and mineral fertilization in the areas adjacent to the forest should be sought that they shall do as little harm to the avifauna as possible;

f) to increase the number of nature reserves complementary to the Białowieża National Park;

g) to intensify the regional ornithological studies on the current changes in the avifauna and, on their basis, to indicate the measures for its preservation.

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STRESZCZENIE

W oparciu o dane piśmiennictwa oraz obserwacje własne z lat 1947—1981 autorzy prezentują krytyczny przegląd ptaków Puszczy Białowieskiej. Fauna ptaków tego obszaru liczy 226 gatunków, których występowanie na tym te-

renie zostało wiarygodnie udokumentowane. Z tego 51 to gatunki lęgowe osiadłe, 115 lęgowe wędrowne, 26 przelotne oraz 34 zalatujące. Dla każdego gatunku określono charakter występowania, zaś dla najczęściej spotykanych gatunków lęgowych także dane fenologiczne o terminach przylotu i odlotu.

Faunę Puszczy Białowieskiej charakteryzuje bogactwo ptaków drapieżnych (17 gatunków lęgowych). Wśród nich wymienić można kanię rdzawą, orlika grubodziobego, gadożera, orzełka włochatego, sokoła wędrownego. Występuje też 8 gatunków sów, a między nimi gnieźdzą się tu puchacz, sóweczka, puszczyk mszarny. Liczne są również gatunki właściwe lasom o charakterze zbliżonym do pierwotnego tudzież innym środowiskom naturalnym, głównie obszarom podmokłym. Z gatunków tych należy przytoczyć gnieźdzenie się bociana czarnego, żurawia, dubelta, dzięcioła białogrzbietego, dzięcioła trójpalczastego, głuszcza, cietrzewia, jarząbka, brzęczki, wodniczki, orzechówki, zniczka, muchołówki małej i muchołówki białoszyjej oraz świstunki zielonawej i dziwoni. Orzełek włochaty i puszczyk mszarny mają w Puszczy Białowieskiej jedyne w Polsce stanowiska lęgowe.

Wielowiekowa działalność człowieka, powstanie wewnątrz kompleksu leśnego polan osadniczych, szlaków komunikacyjnych oraz rozległych łąk w dolinach rzek sprzyjało przenikaniu do wnętrza kompleksu puszczańskiego licznych gatunków synantropijnych. Niemniej jednak niektóre z nich jak np. gawron i kawka nadal się nie gnieźdzą w Puszczy Białowieskiej, inne zaś, jak sroka, wrona siwa, ortolan, trznadel i dzierlatka są nieliczne, a szpak dopiero zaczyna zasiedlać obrzeża drzewostanów puszczańskich.

Duże zmiany w ornitofaunie Puszczy Białowieskiej spowodowało osuszenie w latach 50. kompleksu bagien Dziki Nikor, budowa zbiornika wodnego Ljackije i odstrzał ptaków drapieżnych, kontynuowany we wschodniej części Puszczy. W najbliższym czasie duże zmiany spowoduje oddanie do użytku zbiornika retencyjnego Siemianówka w dolinie Narwi na północno-zachodnim przedpolu Puszczy.

Celem ochrony ornitofauny autorzy proponują zwiększenie sieci obszarów chronionych, prowadzenie gospodarki leśnej w sposób zapewniający utrzymanie charakterystycznej wielogatunkowej i wielowiekowej struktury drzewostanów, przestrzeganie zasad ochrony ptaków drapieżnych, nienaruszalność stosunków hydrologicznych w Puszczy i jej bezpośrednim sąsiedztwie, zaniechanie odstrzału ptaków drapieżnych we wschodniej części Puszczy, objęcie głuszcza całkowitą ochroną osaz dalszą intensyfikację badań terenowych.