

FAUNISTIC DATA ON BIRDS (AVES) AND MAMMALS (MAMMALIA) FROM CINDREL MOUNTAINS (ROMANIA)

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Abstract. This study presents an updated faunistic list for the two vertebrate classes from the area of the Cindrel Mountains, where three protected areas of national importance were promulgated recently. Upper vertebrate fauna gathers 92 bird species and 46 mammal species. A number of 53 bird species is included in the national and international legislation on avifaunal protection. From mammals, 32 species are included the national legislation, respectively 30 species are included the international legislation. Some of them became rare or are threatened.

Résumé. La faune de la zone des Monts Cindrel comprend 92 espèces d'oiseaux et 46 espèces de mammifères. Un nombre de 53 espèces d'oiseaux figure dans la législation nationale et internationale de protection de la faune. 32 de ces espèces de mammifères sont protégées par lois nationales et 30 espèces par celles internationales. Certaines en sont devenues rares ou sont menacées par l'extinction et afin de les protéger il est nécessaire de déclarer dans cette zone des aires protégées.

Key words: biodiversity, birds, mammals, habitats, legislation, protection

INTRODUCTION

Cindrel Mountains lays to the South of the Transylvanian Depression, bordered by Valea Frumoasei to South-West, by Valea Sebeșului to West and by Valea Sadului to South-East (Fig. 1). They were also named Sibiu Mountains and Cibin Mountains, characterized by the massiveness of the Cindrel Peak, with an altitude of 2244 m and a gentle relief of crystalline schists. Other peaks of the Cindrel Mountains are: Frumoasa (2168 m), Cănaia (2057 m), Niculești (2036 m) and Șerbota Mare (2002 m). They have a rich hydrographic net, directed towards the Olt and Mureș rivers. Cibin River flows in the Olt, in the place named „*La Piscu*” – where Râul Mare joints Râul Mic. Our studies were made between locality Gura Râului (at 20 km West to Sibiu) and along the right shore of the Gura Râului dam lake. This dam lake formed after a dam was built in 1981. The dam is 72 m high and it was built at an altitude of 550 m, in the Cibin River, covering a surface of 68 ha. Also, we made trips in the valley of Râul Mare, at Orlat, Rășinari, Păltiniș, Valea Mică, and those of the tributaries with a stony bed, invaded by a grassy vegetation (spontaneous Gramineae, *Fragaria vesca*, *Urtica dioica*, *Atropa belladonna*, *Taraxacum officinale*, *Tusilago farfara*), bordered by young trees of beech and alder. Streamlets are torrential, the slope inclination being of about 10%, with waterfalls here and there.

The first systematical reports with a general character on the bird and mammal species of Transylvania dates from the 19th century, when the specialists of the “Society of the Transylvanian Naturalists” made lists with the observed species periodically (Bielz, 1886, 1888; Daday, 1885). At the beginning of the 19th century

Leonhard (1812) published the systematics of birds and mammals, in Sibiu, among them being also mentioned some bat species. Later, scientists as Călinescu (1931, 1956), Vasiliu & Şova (1968), Cătuneanu (1982), Benedek (2002, 2004) had important contributions on the mammal diversity in the Cindrel Mountains.

This paper is a synthesis of the two vertebrate classes, summing up the results of some field trips made several years ago, to which we added our results from 2007 and 2008, the observations published along years and the materials collected and preserved in the museums of Sibiu, Bucureşti and Cluj. The data got during the two years, 2007-2008, by the specialists of the „Grigore Antipa” National Museum of Natural History and of „Ion Cantacuzino” Institute, were for the project CEEX 86/2006: „Multidisciplinary research of the circulation and emergence of the zoonotic viruses, agents of the bird flue, of some hemorrhagic fevers and of some neuroinvasive infections, an innovating concept on the survival at the level of multiple interfaces: human health/animal health/wild fauna/environment”. The project was coordinate by „Ion Cantacuzino” Institute of Bucureşti (Bucharest).

By this study we offer an updated faunistic list for the two vertebrate classes, necessary in this area where four protected areas of national and local importance were promulgated: three in the “Natura 2000” national network (ROSCI 0132 - Middle Olt River - Cibin - Hârţibaciu; ROSCI085 - Frumoasa; ROSPA 043 - Frumoasa) and a protected area at the local level – Cindrel National Park (HCJ Sibiu 12/28.09. 1994).

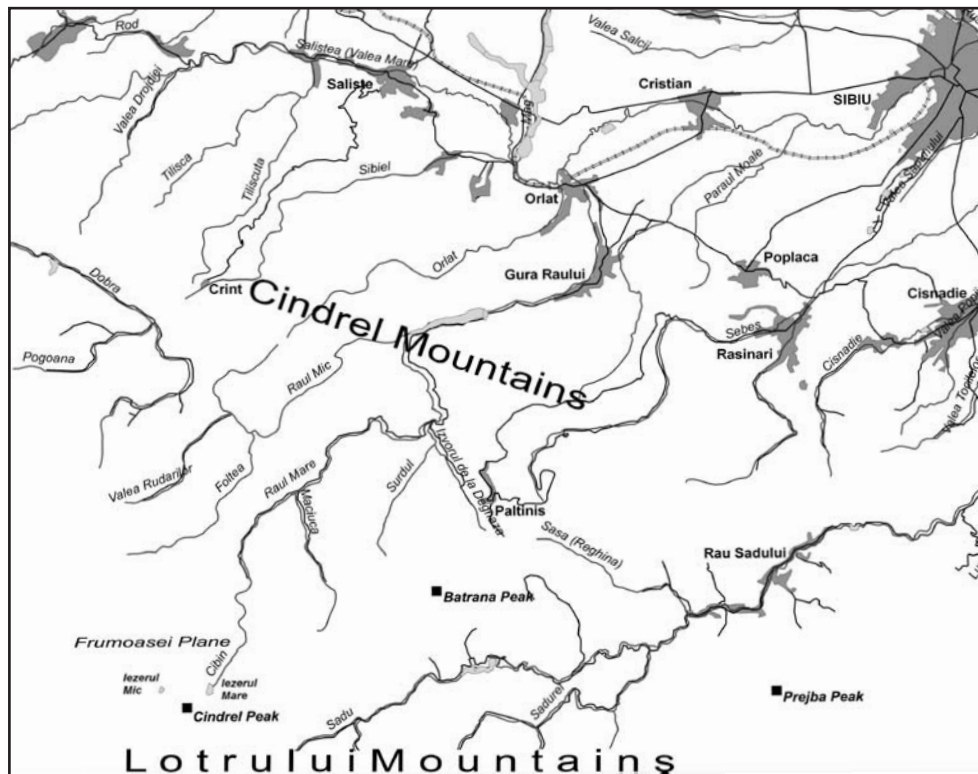


Fig. 1 – Map of Cindrel Mountains.

MATERIAL AND METHOD

For the ornithological studies we used the binocular and collected several nests of Passeriformes and remains of egg laying found during the study of the habitats between the locality Gura Râului and the dam lake tail, the valley of the Râul Mare, Orlat, Rășinari, Păltiniș, Valea Mică. Some bird species are reported after the listening and/or recording of their song within the periods the 18th – 21st of October 1992, the 19th – 20th of September 2007 and the 4th – 5th of July 2008, in the forest from the valley of the Râul Mare, Cibin River and its tributaries, upstream Gura Râului commune (Sibiu county). This report based on the bird inventory and the collecting of the micromammals (rodents, insectivores) using Sherman traps. Also, on the spot, observations of the tracks, excrements, hills and food remains were made. After they were collected, the micromammals (insectivores, rodents) were identified, measured with the sliding callipers and SuperSamson balance (0-50 g), then, a part of them was released, another one was preserved in 70% alcohol (Tab. 2).

Taking into consideration the theme of the mentioned project, during the collecting of the small mammals made with different types of traps (mainly live traps of Sherman type) we especially aimed at the species: *Clethrionomys glareolus* (Schreber, 1780), *Microtus arvalis* (Pallas, 1778), *Apodemus agrarius* (Pallas, 1771), *Apodemus sylvaticus* (Linnaeus, 1758), *Apodemus flavicollis* (Melchior, 1834). For these species we studied mainly the biotopes of deciduous and mixed forests, of shrubs and bushes along the streamlets.

Besides the small mammal collecting, we made observations on the tracks, paths, burrows, shelters, galleries, excrement of any kind of mammal species of the orders Insectivora, Chiroptera, Lagomorpha, Rodentia, Carnivora and Artiodactyla. For the representatives of the last two orders we informed ourselves at the forest rangers of the area and the local people who know especially the animals of hunting interest.

Between the 18th – 21st of October 1992, Murariu observed and collected micromammals (insectivores and rodents) from the forests around the commune Gura Râului (Sibiu county). Till now, 90 micromammals (skins, skulls) belonged to the mammal scientific collection of “Grigore Antipa” National Museum of Natural History (București). In 2007-2008, 21 specimens of six species were captured. Thus, for the time being, we have 111 individuals of nine species (Tab. 2).

This collection also includes skins, skulls, trophies from several mammal species which were collected or donated. Therefore we mention some species: *Sorex araneus* Linnaeus, 1758; *Neomys fodiens* (Pennant, 1771); *Muscardinus avellanarius* (Linnaeus, 1758); *Clethrionomys glareolus* (Schreber, 1780); *Microtus arvalis* (Pallas, 1778); *M. subterraneus* (de Selys - Longchamps, 1841); *Apodemus sylvaticus* (Linnaeus, 1758); *Ap. agrarius* (Pallas, 1771); *Ap. flavicollis* (Melchior, 1834); *Mus musculus* Linnaeus, 1766.

RESULTS AND DISCUSSIONS

BIRDS (Class AVES)

Cindrel Mountains are very close to Sibiu, that is why they could be easier visited by the ornithologists even from the half of the 19th century. Thus, Bielz observed, in 1863, *Eudromias morinellus* and collected three specimens, a male, a female and a chicken. All these specimens are preserved in the ornithological collection of the Museum of Sibiu (Kammer, 1914 ; Stein-von Spiess, 2005), and in

1864 Bielz published a paper in which he reported this bird new to the Transylvanian avifauna. This is the first avifaunal study in the Cindrel Mountains. Later, several hunters collected numerous items, prepared as skins, naturalized specimens or anatomical items which were donated to the Museum of Sibiu. Eduard Albert Bielz and Professor M. Kimakovicz, amateur ornithologist, made numerous trips, collected and observed several bird species. The observations and collected items are published by E. A. Bielz in the monthly communications of "Astra" Association of Sibiu and in a more ample paper on the Transylvanian mammals, where he included both his own data and Kimakovicz's ones (Bielz, 1888). Kimakovicz published much later his own observations (Kimakovicz, 1896). From the correspondence sent by R. Heyeder (1911) to the editorial staff of the "Aquila" Journal, we found out that also Eduard Czynk (ornithologist known that time, who mainly studied the avifauna of the Făgăraș Mountains) visited Gura Râului and its surroundings but, unfortunately, he did not published these observations. The interesting avifauna of these mountains also drew attention to other ornithologists as L. Führer, curator at the Transylvanian Museum of Cluj, who collected three special specimens in July 1907: a female of *Haliaeetus albicilla*, a female of *Gyps fulvus* and a male of *Circaetus gallicus* (Gherghel, 1988), now preserved in the skin collection of this museum. For almost 50 years, between 1910-1960, we haven't found in literature other reports or papers on the avifauna of Cindrel Mountains. In 1963, Klemm discovered *Eremophila alpestris*, Shore Lark, as a nestling species in the Cindrel Mountains, reported for the first time in Romania, and published some papers (Klemm, 1963, 1965); from Rășinari, A. Papadopol collected *Emberiza cia* and published a paper on the rare birds from this area (Papadopol, 1964). Collected materials are published in the catalogue of the ornithological collection of "Grigore Antipa" National Museum of Natural History (Papadopol & Tâlpeanu, 1987). Also in this collection there are some nests collected by D. Murariu in 1992 (Petrescu, 2005).

Silvia Stein-von Spiess (1960) observed the Dotterel (reported in 1863 by Bielz) after almost 100 years, nestling in the Cindrel Mountains, and Klemm (1970) published a very well-documented study on *Eudromias morinellus* from the Carpathians. Werner Klemm is one of the ornithologists who studied the avifauna of this mountains more than 20 years, since 1950 till after 1970, most of these observations remaining unknown till 1988, when he published a monograph paper on the Transylvanian avifauna together with Ștefan Kohl, where they republish all these data on the birds of the Cindrel Mountains (Klemm & Kohl, 1988). The avifauna of the Cindrel Mountains was also studied by foreign ornithologists as Thönen (1968) and Matousek et al. (1970). Zsivanovits (1972, 1982) studied the avifauna of these mountains and made a list with 31 species, and he collected a lot from the localities of the area, the collected specimens being preserved in the collection of the Museum of Sibiu (Stein-von Spiess, 2005). In our studies from September 2007 and July 2008, we observed 38 species and completed the lists of the known ones in this area.

All these published data, communicated by different ornithologists were the base in creating some modern maps with the species of the Romanian hatching birds, where the Cindrel Mountains are also mentioned: Ciochia (1992), Weber et al. (1994) and Munteanu et al. (2002). The list of the observed birds, collected or cited in literature from the Cindrel Mountains, was systematically ordered according to Sibley & Monroe (1990).

The list of the bird species from the Cindrel Mountains which were observed, collected or cited in literature

ORD. GALLIFORMES, FAM. TETRAONIDAE: ■ *Bonasa bonasia* (Linnaeus, 1758) – Bielz (1888) observed this bird in the Cindrel Mountains; a male collected from Orlat on 15.11.1896 (no. coll. 1574/623 M, MS) (Stein-von Spiess, 2005); S, Br, from beech and mixed forests (beech-spruce fir); A5C-RGO; ■ *Tetrao urogallus* Linnaeus, 1758 – Capercaillie was observed in the Cindrel Mountains by Bielz, and Kimakovicz cited it from Prejba (Bielz, op. cit.); Zsivanovits (1972) observed the Capercaillie in the Cindrel Mountains twice, in May 1965 in Frumoasei Tableland, when he found the excrement of the Capercaillie which fed on fruits of *Vaccinium vitis-idaea* and of *Vitis myrtillus*, and in November, the same year, in an area with spruce firs from Valea Sadului. In the collection of the Museum of Sibiu, there are 16 specimens of Capercaillie collected from the Cibin Mountains between 1879-1988 (Stein-von Spiess, op. cit.): a male and a female from Prejba (Cindrel Mountains) from April 1879 (no. coll. 1545/2591a N; 1546/2591b N); a female from Orlat from April 1894 (no. coll. 1543/616 N); a specimen from Păltiniș from 5.05.1895 (no. coll. Vt 493); two specimens, a male from Niculești (Cindrel Mountains) from 24.04.1899 and from 8.05.1900 (no. coll. Vt. 513, Vt 501, MS), two specimens from Păltiniș, Cindrel Mountains, from 13.05.1902 (no. coll. Vt 507, Vt 496, MS) processed as a trophy; in 1914 Czekelius collected a female from the Cindrel Mountains from which only the skull remained (no. 2656/2341/68); two specimens collected from Orlat on 28.04.1926 from which the skull and stomach content were preserved (no. coll. 4675, 4492/5082); a male collected in Poienița Orlat on 30.04.1930 (no. coll. 1548/3079 N); a male collected on 16.04.1961 from Negovan, Valea Sadului (Cindrel Mountains) (no. coll. 4680 N) from which only the eyes, tongue and throat were preserved (4681/5088 și 4682/5089); a male caught at Cănaia, Cindrel in January 1988, from which only the stomach content was preserved (no. coll. 5214); a juvenile male collected from Valea Sadului (Cindrel Mountains) in October 1997, without collection number, prepared as skin; also, there is a thorax from a male collected from Păltiniș, without collecting data (no. coll. 2668/2344/234). Also, in the collection of the Museum of Sibiu there are four eggs collected from Păltiniș in June 1895 (no. coll. 4182/1441, 4186-4188/1872, MS) and three eggs from Șanta, Cindrel Mountains, one collected on 13.06.1899 and two on 14.05., unknown year (no. coll. 4185/1871, 4183-4184/1902, MS) (Stein-von Spiess, op. cit); S, Br, in coniferous forests; A3, A5C-RGO A5E-RGO; ■ *Lyrurus tetrrix* Linnaeus, 1758 - Jacobi (1979) reminds a colonization attempt of the Black Grouse in the Cindrel Mountains in 1913 with birds brought from Russia. From the 19 birds only 7 survived (four males and three hens). Stein-von Spiess (1957) cited the notes of an Austrian hunter who pretended that he shot two males in 1915 (probably those released in 1913). Jacobi (op.cit.) mentioned an observation from 1948, when he saw a male and a female in the forest. Stein-von Spiess (op. cit.) mentioned two observations from 1951, a female seen at „La Pisc”, the confluence point between Râul Mare and Râul Mic, and the other one at Păltiniș. Klemm & Kohl (op. cit.) took over these mentions and consider them doubtful; S, sr, today the population is decreasing in Romania till less than 100 nestling pairs; A3-RGO; CRVR. FAM. PHASIANIDAE: ■ *Perdix perdix* (Linnaeus, 1758) – observed in Cindrel Mountains between 1950-1960 by Klemm & Kohl (op. cit.); S, Br, widely distributed in Romania, but their population is decreasing; A5C-RGO.

ORD. PICIFORMES, FAM. PICIDAE: ■ *Dryocopus martius* (Linnaeus, 1758) – was observed by Bielz (op. cit.) in the Cindrel Mountains; a female collected from Orlat on 29.08.1896 (no. coll. 606/1104 N, MS), a male collected from Șanta (Cindrel Mountains) on 1.09.1909 (no. coll. 608/1106 N, MS) (Stein-von Spiess, op. cit.); observed in the Cindrel Mountains by Klemm & Kohl (op. cit.) and by Thonen (1968); S, Br; A3-RGO; ■ *Dendrocopos major* (Linnaeus, 1758) – observed at Gura Râului, 3.07.2008 and Rășinari, 4.07.2008; S, Br; ■ *Picus tridactylus* C. L. Brehm, 1831 – species observed by Bielz (op. cit.) in the Cindrel Mountains; a female collected in May 1922 from the Cindrel Mountains (no. coll. 601/1128 N, MS) (Stein-von Spiess, op. cit.); Klemm & Kohl (op. cit.) observed the species at Muncel (Cindrel Mountains) at the altitude of 1660 m, and Matousek et al. (1970) at Păltiniș, at 1430 m; S, Br, prefers the spruce fir forests; A3-RGO; ■ *Dendrocopos leucotos* (Bechstein, 1803) - Kimakovicz observed it in Cindrel Mountains (Bielz, op. cit.); S, Br, in deciduous forests; A3-RGO.

ORD. CORACIIFORMES, FAM. ALCEDINIDAE: ■ *Alcedo atthis* (Linnaeus, 1758) - Bielz observed the Kingfisher in the Cindrel Mountains, and Kimakovicz found it nestling at Cristian (Bielz, op. cit.); Klemm & Kohl (op. cit.) found a dead specimen at Cristian on 14.01.1979; a specimen, observed by us, on the Cibin River, upstream Gura Râului, 3.07.2008; S; Br; A3-RGO.

ORD. CUCULIFORMES, FAM. CUCULIDAE: ■ *Cuculus canorus* Linnaeus, 1758 - Zsivanovits (1972) observed the cuckoo above the Frumoasei Tableland (the Cindrel Mountains) on 26.05.1965; M, OV, Br.

ORD. APODIFORMES, FAM. APODIDAE: ■ *Apus melba* (Linnaeus, 1758) – Kimakowicz's observation from Prejba in 1884 is cited by Bielz (op. cit.) and by Klemm & Kohl (op. cit.); M, OV, Br.

ORD. STRIGIFORMES, FAM. TYTONIDAE: ■ *Tyto alba* C. L. Brehm, 1831 – a female collected from Rășinari, on 10.01.1902 (no. coll.685/1196N, MS) (Stein-von Spiess, op. cit.); S, Br; A4B-RGO, CRVR. FAM. STRIGIDAE: ■ *Bubo bubo* (Linnaeus, 1758) – a male collected from Rășinari, on 29.03.1906 (no. coll. 629/1242 N, MS) and a specimen on Cibin River, collected on 16.12.1970 (coll. 5117 N, MS) (Stein-von Spiess, op. cit.); S; Br; A3-RGO, CRVR; ■ *Glaucidium passerinum* (Linnaeus, 1758) – a male collected from Păltiniș (the Cindrel Mountains), in April 1920 (no. coll. 661/1206 N, MS) and a male collected during the moulting period from the Cindrel Mountains, on 06.08.1959 (no. coll. 4528/4958 N, MS); from this species a thorax, the pelvis and eyes were also preserved in alcohol (no. coll. 4556/4960, 4609/4959, MS) (Stein-von Spiess, op.cit.); S; Br; A3-RGO; ■ *Asio otus* (Linnaeus, 1758) – a female collected from Rășinari on 08.10.1971 (no. coll. 5157 N, MS) (Stein-von Spiess, op. cit.); S, Br; ■ *Strix uralensis* Pallas, 1771 – a specimen collected from Păltiniș (Cindrel Mountains) on 03.12.1971 (no. coll. 4818 B, MS) and a skull of a male collected from the Cindrel Mountains, on 05.01.1902 (no. coll. 2265/3046 C, MS) (Stein-von Spiess, op. cit.); S, Br, it prefers the mountain forests. FAM. CAPRIMULGIDAE: ■ *Caprimulgus europaeus* Linnaeus, 1758 – observed at Rășinari by Klemm & Kohl (op. cit.); M, OV; Br; A3-RGO.

ORD. COLUMBIFORMES, FAM. COLUMBIDAE: ■ *Columba palumbus* Linnaeus, 1758 – observed by Klemm & Kohl (op. cit.) at Brădet and Păltiniș, mentioning that it is more frequent in Sibiu region, although it did not occur before; M, OV, Br; A5C-RGO.

ORD. CICONIIFORMES, FAM. SCOLOPACIDAE: ■ *Scolopax rusticola* Linnaeus, 1758 – a specimen collected on 05.11.1962 on the Cibin River (no. coll. 4715 N, MS) (Stein-von Spiess, op. cit.); observed by Thönen (1968) at Păltiniș, on

10-11.05.1965 in roding period (cited by Klemm & Kohl, 1988); M, OV, T; ■ *Philomachus pugnax* (Linnaeus, 1758) – Klemm & Kohl (op. cit.) observed the Ruff on the Cibin Tableland, at 2200 m altitude; M, OV, T. A5E-RGO. FAM. CHARADRIIDAE ■ *Eudromias morinellus* (Linnaeus, 1758). Bielz (op. cit.) found the Dotterel nestling on Cindrel Peak, in July 1863, when he observed two chickens. In the collection of the Sibiu Museum there are three specimens collected by E. A. Bielz, on 28.06.1863, on Cibin Lake from the Cindrel Mountains (♂ no. coll. 1267/486 a, ♀ 1268/486 b, chicken 1269/486 c N), an egg fragment collected by W. Klemm from Cindrel, on 5.08.1952 and a juvenile collected by P. Zsivanovits, in August 1967 from the Cindrel Peak (no. coll. 4889 B) (Stein-von Spiess, op. cit.); Zsivanovits (1972) observed eight specimens on Frumoasei Tableland (the Cindrel Mountains), and on 28.08.1970 he found a chicken; Klemm (1970) observed the species in this area in 1952, data cited by Klemm & Kohl (op. cit.); M, OV, sr, Br, prefers alpine lawns, at high altitudes; A3-RGO, CRVR; ■ *Vanellus vanellus* (Linnaeus, 1758) – two specimens collected from Orlat, on 30.05.1869 (no. coll. 1282/504 N, MS), and from Cibin River, on 08.05.1966 (no. coll. 4919 B, MS) (Stein-von Spiess, op. cit.); a specimen observed at Orlat, 5.07.2008; M, OV, Br. FAM. ACCIPITRIDAE: ■ *Pernis apivorus* (Linnaeus, 1758) – a female collected from Turnișor on 15.06.1900 (no. coll. 895/1579, MS) (Stein-von Spiess, op. cit.); Klemm & Kohl (op. cit.) observed the Honey Buzzard in the Cindrel Mountains at 1670 m; M, OV, NBr, sr; A3-RGO; CRVR; ■ *Haliaeetus albicilla* (Linnaeus, 1758) – White-tailed Eagle was observed by Bielz (op. cit.) in Cibin Valley; a female collected from the Cindrel Mountains (no. coll. 2201 B, MC) (Gherghel, 1988); S, sr, T; A3-RGO; CRVR; ■ *Gypaetus barbatus* (Linnaeus, 1758) – observed in the Cindrel Mountains by Kimakovicz and cited by Bielz (op. cit.); D, A3-RGO, CRVR; ■ *Gyps fulvus* (Hablizl, 1783) – a female collected from the Cindrel Mountains in July 1907 (no. coll. 2202 B, MC) (Gherghel, op. cit.); D, A3-RGO, CRVR; ■ *Aegypius monachus* – observed in the Cindrel Mountains by Bielz (op. cit.); D, A3-RGO, CRVR; ■ *Circaetus gallicus* (Gmelin, 1788) – an egg collected from the Cindrel Mountains on 03.04., without year (no. coll. 3976/1467, MS) (Stein-von Spiess, op. cit.); a male from the Cindrel Mountains, collected in July 1907 (no. coll. 2204 B, MC) (Gherghel, op. cit.); OV, T, sr, A3-RGO, CRVR; ■ *Buteo buteo* (Linnaeus, 1758) – observed by Bielz (op. cit.) in Cibin Valley; a female collected from Orlat, on 14.12.1904 (no. coll. 793/1583 M, MS) (Stein-von Spiess, op. cit.); observed by Zsivanovits (1972) in 1965, 22.06. and 28.07., above Iezerului Mare (the Cindrel Mountains); on the fly, above the dam lake Gura Râului, 19-20.09.2007; on the tableland towards Păltiniș, 4.07.2008; S, Br; ■ *Buteo lagopus* (Pontoppidan, 1763) – a female collected from Orlat, on 16.02.1900 (no. coll. 807/1565 N, MS) (Stein-von Spiess, op. cit.); OI; ■ *Aquila heliaca* Savigny, 1809 - Bielz observed this species in the Cindrel Mountains and in Cibin Valley, and Kimakovicz observed it at Orlat and Sibiu (Bielz, op. cit.). Probably, these were young specimens because in Bielz's list they are named *Aquila fulva*. In the Museum of Cluj there are two specimens, an adult male and a juvenile, collected from the Cindrel Mountains, in July 1907 (no. coll. 2196 B, MC) (Gherghel, 1988); M, OV, sr; A3-RGO; CRVR; ■ *Aquila chrysaetos* (Linnaeus, 1758) – a specimen prepared as a trophy, from Cristian, collected on 24.01.1895 (no. coll. Vt.502, MS) and a male collected from Vulturului Peak from the Cindrel Mountains, on 18.12.1908 (no. coll. 755/1599, MS) (Stein-von Spiess, op. cit.); observed above Frumoasei Tableland, Iezerul Mic and Iezerul Mare, on 26.05.1965 by Zsivanovits

(1972) who thought that pair nested in Cîbin Gorges; S, Br; A3-RGO, CRVR; ■ *Hieraetus pennatus* (Gmelin, 1788) – a male collected from Șanta from the Cindrel Mountains, on 28.09.1902 (no. coll. 786/1316, MS) (Stein-von Spiess, op. cit.); M, OV, sr; A3-RGO, CRVR. FAM. FALCONIDAE: ■ *Falco tinnunculus* Linnaeus, 1758 - Zsivanovits (1972) observed the Kestrel in Căldarea Iezerului Mic, in 1965 where it nested for several years, and Klemm & Kohl (op. cit.) observed it in the Cindrel Mountains, at 2205 m; a specimen on the fly, looking for food on the tableland towards Păltiniș, 4.07.2008; OV, Br; A4B-RGO; ■ *Falco vespertinus* Linnaeus, 1766 – observed by Kimakovicz at Cristian and Orlat (Bielz, op. cit.); M, OV, T; A3-RGO, CRVR; ■ *Falco columbarius aesalon* Linnaeus, 1758 – a female collected from the Cindrel Mountains, on 17.01.1901 (no. coll. 718/1550 N, MS) (Stein-von Spiess, op. cit.); OI, T; ■ *Falco subbuteo* Linnaeus, 1758 – observed by Zsivanovits (1972, 1984) above Frumoasei Tableland (22-23.06.1965 and 2.08.1967) at 2205 m (mentioned by Klemm & Kohl, 1988); M, OV; A4B-RGO. FAM. PHALACROCORACIDAE: ■ *Phalacrocorax pygmaeus* (Pallas, 1773) – a juvenile male collected from Orlat, on 14.11.1924 (no. coll. 1152/409 N, MS) (Stein-von Spiess, 2005); four bones (hyoid bone, skull and two thorax) from a male collected in October 1921 from Orlat (2548, 2550, 2303/30, 2551/2304/31, MS) (Stein-von Spiess, op. cit.); M, OV, T; A3-RGO, CRVR. FAM. CICONIIDAE: ■ *Ciconia ciconia* (Linnaeus, 1758) - in his censuses from 1963, 1967 and 1974, Klemm (1975) found a pair with two chickens at Gura Râului, in 1963, and at Orlat, in 1963, he counted 24 pairs (seven without chickens, 17 pairs with 34 chickens), in 1967 he did not found any pair, and in 1974 there were eight pairs (three without chickens and five pairs with nine chickens); at the beginning of April 1978 Klemm & Kohl (1988) observed the passage of a flock of 1,000 storks over the Cindrel Mountains, within the area of Sadului River; another passage, reported by the same authors, of a flock of 67 storks, was observed in the Șanta area from the Cindrel Mountains, on 12-13.09.1982; a nest at Orlat, 19.09.2007 and 3.07.2008; M, OV, Br; A3-RGO, CRVR. ORD. PASSERIFORMES, FAM. CORVIDAE: ■ *Garrulus glandarius* (Linnaeus, 1758) – six eggs collected from Rășinari, 20.05.1900 (2851-2856/1403, MS) (Stein-von Spiess, op. cit.); Rășinari, a specimen, 4.07.2008; S, Br; A5C-RGO; ■ *Pica pica* (Linnaeus, 1758) – a pair at the entrance in the locality Gura Râului, 19.09.2007, 3.07.2008; S, Br; A5C-RGO; ■ *Nucifraga caryocatactes* (Linnaeus, 1758) – observed by Bielz (op. cit.) in the Cindrel Mountains; a female collected from Orlat on 13.08.1904 (no. coll. 26/876 N, MS) and an adult male also here, on 12.09.1904 (no. coll. 25/874 N, MS) (Stein-von Spiess, op. cit.); Klemm & Kohl (op. cit.) reported the Nutcracker at Păltiniș and Crinț in autumn; on 19-20.09.2007 a specimen, in a spruce fir forest near the Gura Râului dam lake; S, Br; A4B-RGO; ■ *Nucifraga caryocatactes macrorhyncha* C. L. Brehm, 1823 – some prepared bones of a female collected from Prejba (the Cindrel Mountains) on 7.05.1969 (no. coll. 5103, MS) (Stein-von Spiess, op. cit.); OI, T; ■ *Corvus monedula* Linnaeus, 1758 – Klemm & Kohl (op. cit.) observed it at Păltiniș, the Cindrel Mountains, at 1442 m; S, Br; A5C-RGO; ■ *Corvus corone cornix* Linnaeus, 1758 - Klemm observed 6 specimens of Hooded Crow in the tableland of the Cindrel Mountains, on 23.04.1967 and 14 specimens on 28.07.1978 (Klemm & Kohl, op. cit.); Zsivanovits (1972) observed it while it was looking for food in the Cindrel Mountains; S, Br; A5C-RGO; ■ *Corvus corax* Linnaeus, 1758 – a juvenile specimen collected on 5.08.1967 (no. coll. 4850 B, MS) from the summit of the Cindrel Mountains (Stein-von Spiess, op. cit.); Zsivanovits (1972) observed 27

crows on the Frumoasei Tableland (the Cindrel Mountains) on 27.07.1965; it was observed on 19-20.09.2007 and 3.07.2008 at Gura Râului and on the tableland towards Păltiniș; S, Br; A4B-RGO, CRVR. FAM. BOMBYCILLIDAE: ■ *Bombycilla garrulus* (Linnaeus, 1758) – three bones (skull, thorax, hyoid bone) from a juvenile male collected from Orlat, in January 1924 (no. coll. 2142-44/2126/125, MS) (Stein-von Spiess, op. cit.); OI, T; A4B-RGO. FAM. CINCLIDAE: ■ *Cinclus cinclus* (Linnaeus, 1758) – reported from the Cibin Valley by Bielz (op. cit.); adult male collected from Rășinari, on 15.11.1877 (no. coll. 516/836 N, MS), a specimen collected from the Cibin River, on 2.01.1971 (no. coll. 5123 B, MS) (Stein-von Spiess, op. cit.); adult male collected from Rășinari on 31.03.1963 (no. coll. 14167 B, MNINGA) (Papadopol & Tâlpeanu, 1987); Zsivanovits (1972) observed this species at 1800 m in the Cindrel Mountains, in Iezerul Mare, on 23.06.1965 and on 18.07.1966, observation reported by Klemm & Kohl (op. cit.); on Cibin River, upstream Gura Râului and at Rășinari, on 3-4.07.2008; S, Br; A4B-RGO. FAM. MUSCICAPIDAE: ■ *Phoenicurus ochruros gibraltariensis* (Gmelin, 1789) - Bielz (op. cit.) observed this species in the Cindrel Mountains; a juvenile specimen collected from the Cindrel Mountains on 4.07.1967 (no. coll. 4904 B, MS) (Stein-von Spiess, op. cit.); Zsivanovits (1972) considered the Redstart frequent in Cindrel-Iezere region; M, OV, Br; ■ *Oenanthe oenanthe* (Linnaeus, 1758) - Bielz (op. cit.) observed the species in the Cindrel Mountains; a female collected from the Cindrel Mountains, on 20.04.1922 (no. coll. 456/777 N, MS) (Stein-von Spiess, op. cit.); observed by Klemm & Kohl (op. cit.) at the altitude of 2000 m in the Cindrel Mountains; Zsivanovits (1972) thought that it is the most frequent species in the Cindrel Mountains, together with *Anthus spinoletta* and *Phoenicurus ochruros*; observed by us at Gura Râului, in 2007 and in 2008, at Rășinari and Păltiniș; M, OV, Br; A4B-RGO; ■ *Monticola saxatilis* (Linnaeus, 1766) – Klemm & Kohl (op. cit.) observed some families at 1946 m altitude in the Cindrel Mountains, along several years, and on the Bătrâna Peak, at the altitude of 1800 m in the autumn of 1961; Zsivanovits (1972) observed two families with flying chickens, at Iezerul Mic, in August 1970; M, OV; A4B-RGO; ■ *Saxicola rubetra* (Linnaeus, 1758) – a male collected from Negovan, Sadului Mountains, on 26.08.1922 (no. coll. 472/772 N, MS) (Stein-von Spiess, op. cit.); ■ *Erithacus rubecula* (Linnaeus, 1758) – observed in Râul Mare Valley, 19-20.09.2007 and in Valea Mică in July 2008; M, OV, Br; A4B-RGO; ■ *Turdus philomelos* C. L. Brehm, 1831 – a nest in the collection of „Grigore Antipa” Museum, from Gura Râului, on 18.10.1992 (no. coll. 1583/39, MNINGA) (Petrescu, 2005); M, OV, Br; A5C-RGO; ■ *Turdus torquatus* Linnaeus, 1758 – a female collected from Orlat in 1892 (no. coll. 436/801 N, MS); two specimens collected from the Cindrel Mountains, a male in May 1922 (no. coll. 433/888 N, MS) and a female on 12.04.1922 (no. coll. 435/890 N, MS) (Stein-von Spiess, op. cit.); Zsivanovits (1972) thought it was a frequent species in the Cindrel Mountains; observed by Peter Weber in the Cindrel Mountains, at 900 m (according to Klemm & Kohl, op. cit.); M, OV, Br; ■ *Turdus viscivorus* Linnaeus, 1758 – observed by Bielz (op. cit.) in the Cindrel Mountains; Klemm & Kohl (op. cit.) observed this species at Rășinari; a nest collected from Gura Râului on 18.10.1992 (no. coll. 1583/34, MNINGA) (Petrescu, 2005); in the valley of valea Râului Mare, 19-20.09.2007, and in Valea Mică, 4.07.2008; S, Br; A5C-RGO; ■ *Turdus merula* Linnaeus, 1758 – a nest collected from Gura Râului on 18.10.1992 (no. coll. 1583/56, MNINGA) (Petrescu, 2005); Klemm & Kohl (op. cit.) observed the Blackbird in the Cindrel Mountains, at

1400 m; in 2007 and 2008, near the Gura Râului dam lake; PM, Br; ■ *Turdus pilaris* Linnaeus, 1758 – observed by Bielz (1888) in the Cindrel Mountains; Kimakovicz found it at Orlat (Bielz, op. cit.), S, Br, OI; A5C-RGO. FAM. STURNIDAE: ■ *Sturnus vulgaris* Linnaeus, 1758 – observed in the Cindrel Mountains by Thönen (1968) and by Klemm & Kohl (op. cit.) at 1200-1300 m altitude; at Râșinari, 4.07.2008; A5C-RGO. FAM. SITTIDAE: ■ *Sitta europaea* Linnaeus, 1758 – an adult male collected from Păltiniș (the Cindrel Mountains) on 5.01.1933 (no. coll. 240/656 N, MS); bony remains (skull and hyoid bone) from the male collected from the the Cindrel Mountains, on 20.03.1922 (no. coll. 2108-2109/2149/164, MS) (Stein-von Spiess, op. cit.); observed at 1800 m, in the Cindrel Mountains, in Iezerul Mare by Zsivanovits (1972, 1984), reported by Klemm & Kohl (op. cit.); in Valea Râului Mare, 19.09.2007; M, OV, Br; A4B-RGO. FAM. CERTHIDAE: ■ *Troglodytes troglodytes* Vieillot, 1807 – observed in the Cindrel Mountains by Bielz (op. cit.); Klemm & Kohl (op. cit.) and Zsivanovits (1972) observed it at 1946 m in Iezerul Mic; in Valea Râului Mare, 3.07.2008; M, OV, Br. FAM. PARIDAE: ■ *Parus montanus* (Baldenstein, 1827) – two specimens (♂♀) collected from Râșinari, on 31.03.1963 (no. coll. 14198/1-2, B, MNINGA) (Papadopol & Tâlpeanu, 1987); observed at an altitude of 1770 m by Klemm & Kohl (op. cit.) in the Cindrel Mountains; S, Br; ■ *Parus ater* Linnaeus, 1758 – observed by Bielz (op. cit.) in the Cindrel Mountains, and by Zsivanovits (1972) on 22.06.1965 in Iezerul Mare; ■ *Parus cristatus* Linnaeus, 1758 – a male from the Cindrel Mountains, collected on 20.04.1922 (no. coll. 215/696 N, MS) (Stein-von Spiess, op. cit.); observed by Klemm & Kohl (op. cit.) in the Cindrel Mountains between 1200 - 1800 m; at Păltiniș, 4.07.2008; S, Br; ■ *Parus caeruleus* Linnaeus, 1758 – observed at the upper limit of the deciduoud forests by Thönen (1968) in the Cindrel Mountains on 11.05.1965, reported by Klemm & Kohl (op. cit.); at Râșinari, 4.07.2008; S, Br; ■ *Parus major* Linnaeus, 1758 – observed by Matousek et al. (1970) and by Thönen (1968) from the Cindrel Mountains, reported by Klemm & Kohl (op. cit.); at Gura Râului, 3.07.2008; S, Br. FAM. AEGITHALIDAE: ■ *Aegithalos caudatus* (Linnaeus, 1758) – observed by Kimakovicz in the Cindrel Mountains (Bielz, op. cit.); in Valea Mică, 4.07.2008; S, Br. FAM. HIRUNDINIDAE: ■ *Hirundo rustica* Linnaeus, 1758 - Zsivanovits (1972, 1984) observed it on the fly, above the Frumoasei Tableland, Iezerului Mare and Iezerului Mic on 26 and 30.08.1968 large flocks of swallow, during migration; at Orlat and Păltiniș 3-4.07.2008; M, OV, Br; ■ *Delichon urbica* (Linnaeus, 1758) - P. Zsivanovits (op. cit.) observed it on 26 and 30.08.1968 in Cindrel, Frumoasei Tableland, a very large flock of House Martins flying southwards; nests at Gura Râului in 2007 and 2008; M, OV, Br. FAM. REGULIDAE: ■ *Regulus regulus* (Linnaeus, 1758) – observed by Bielz (op. cit.) in the Cindrel Mountains; observed at Orlat and at Prejba by Kimakovicz (Bielz, op. cit.); observed by Klemm & Kohl (op. cit.) at 1800 m altitude in the Cindrel Mountains; S, PM, Br. FAM. SILVIIDAE: ■ *Sylvia atricapilla* (Linnaeus, 1758) – observed in Valea Mică, upstream Gura Râului, 4.07.2008, a male; M, OV, Br; ■ *Phylloscopus collybita* (Vieillot, 1807) - Zsivanovits (1972) heard it singing in Iezerul Mic, in 1965-1967; observed by Klemm & Kohl (op. cit.) in Iezerul Mic; 3.07.2008 in the forests on the slopes which border the dam lake of the Cibin River; M,OV, Br; A4B-RGO; ■ *Phylloscopus collybita tristis* Blyth, 1843 – a male collected from the Cindrel Mountains on 5.04.1922 (no. coll. 355/732 N, MS) (Stein-von Spiess, op. cit.); M, OV, Br. FAM. ALAUDIDAE: ■ *Eremophila alpestris balcanica* (Reichenow, 1895) – Shore Lark was observed by Kimakovicz

in the Cindrel Mountains and at Prejba (Bielz, op. cit.); Klemm (1963) saw it in the Cindrel Massif on 16.07.1962, at an altitude of 2000 m, on 23-24.08.1962, and when he came back he found a pair with three chickens; this is the first report of the nestling of this species in Romania; two specimens collected on 3.08.1967 from the Cindrel Mountains (no. coll. 4916 ♂ B, MS; 4917 ♀ B, MS) (Stein-von Spiess, op. cit.); Zsivanovits (1972) observed 12 specimens of this species on the Frumoasei Tableland in August 1967; the same author found it as *Eudromias morinellus* in the Artic-alpine vegetation (*Cetrario-Festucetum supinae*); M, OV and OI, Br, sr; A4B-RGO, CRVR; ■ *Alauda arvensis* (Linnaeus, 1758) – a specimen without collecting data from (no. coll. 194/964 N, MS) (Stein-von Spiess, op. cit.); observed in the Cindrel Mountains, at 1800 m by Klemm & Kohl (op. cit.); M, OV, Br; ■ *Galerida cristata* (Linnaeus, 1758) – observed on 19.09.2007 at the entrance in the locality Gura Râului; S, Br; ■ *Lullula arborea* (Linnaeus, 1758) – observed by Bielz and Czynk in the Cindrel Mountains (Bielz, op. cit.); by Thönen (1968) in the Cindrel Mountains, several birds on a lawn by Klemm & Kohl (op. cit.) on 10.03.1972 in the Cindrel Mountains; M, OV, Br; A3-RGO. FAM. PASSERIDAE: ■ *Passer domesticus* (Linnaeus, 1758); observed at Gura Râului and Orlat, on 19-20.09.2007 and 3.07.2008 at Rășinari and Păltiniș on 4.07.2008; S, Br; ■ *Passer montanus* (Linnaeus, 1758) – a juvenile collected from Rășinari on 12.04.1995 (no. coll. 5212 N, MS) (Stein-von Spiess, op. cit.); observed at Gura Râului and at Orlat, on 19-20.09.2007 and on 3.07.2008 at Rășinari on 4.07.2008; S, Br; ■ *Motacilla alba* Linnaeus, 1758 – a specimen collected from the Cibin River on 18.03.1968 (no. coll. 4957 B, MS) (Stein-von Spiess, op. cit.); observed by Zsivanovits (1972, 1984) in the Cindrel Massif, at 2100 m altitude on 22.06.1965, cited by Klemm & Kohl (op. cit.); observed on Cibin River, upstream Gura Râului, on 3.07.2008; M, OV, Br; A4B-RGO; ■ *Motacilla cinerea* Tunstall, 1771 – species observed in the Cindrel Mountains by Bielz and by Czynk (Bielz, op. cit.); on the Cibin River, upstream Gura Râului, 3.07.2008; M, OV, Br; A4B-RGO; ■ *Anthus spinoletta* (Linnaeus, 1758) – it was observed in the Cindrel Mountains by Bielz (op. cit.); three specimens collected on 1-2.08.1967 from the Cindrel Peak (no. coll. 4880 B, 4902 B, 4903 B, MS); a male collected from the Cibin River, on 7.10.1968 (no. coll. 4964 B; MS) (Stein-von Spiess, op. cit.); Zsivanovits (1972) considered it the most frequent species and found it nestling with eggs and chickens on the Frumoasei Tableland, at Iezerul Mare and at Iezerul Mic; observed in Cindrel at 1700 m altitude on 20.06.1978 by Klemm & Kohl (op. cit.); M, OV, Br; ■ *Prunella collaris* (Scopoli, 1769) – it was observed in the Cindrel Mountains, on 20.03.1863 by Bielz (op. cit.), who collected a specimen (no. coll. 503/902 N) (Stein-von Spiess, op. cit.); Zsivanovits (1972) found it in the Cindrel Mountains, between 1965-1967 and he thought that it was not a frequent bird; Klemm & Kohl (op. cit.) considered the Alpine Accentor permanent resident in the Cindrel Mountains; S, mountaineous, nestling at high altitudes; ■ *Prunella modularis* (Linnaeus, 1758) – species observed by Bielz (op. cit.) in the Cindrel Mountains; two specimens collected in the Cindrel Mountains, without data and a male, on 20.04.1922 (no. coll. 508/899N, MS) (Stein-von Spiess, op. cit.); observed at “La Paltini”, above the altitude of 1850 m by Klemm & Kohl (op. cit.); Zsivanovits (1972) observed it in the Cindrel Mountains, between 1965 - 1967 where he considered it more frequent than *P. collaris*; also, he collected a juvenile specimen (no. coll. 4910 B, MS) (Stein-von Spiess, op. cit.); M, OV, Br. FAM. FRINGILIDAE: ■ *Plectrophenax nivalis* (Linnaeus, 1758) – a specimen observed on 01.11.1970 on the Cindrel Peak,

mentioned by Cătuneanu (1980); a female observed by Zsivanovits (1972) on the Frumoasa Peak (Cindrel) on 20.11.1971; OI, it occur in Romania every 10-13 years; ■ *Fringilla coelebs* Linnaeus, 1758 - Zsivanovits (op. cit.) saw the Chaffinch several time in the Cindrel Tableland; Klemm & Kohl (op. cit.) observed numerous flights at Râșinari in the morning of 28.02.1982, South to the Cindrel Mountains when it still was snowing; along the Gura Râului dam lake on 20.09.2007 and 3.07.2008, at Valea Mică, Râșinari and Păltiniș on 4.07.2008; S-M, Br; ■ *Emberiza cia* Linnaeus, 1766 - Bielz (op. cit.) observed the Rock Bunting in Cibinului Valley; two specimens collected from Râșinari on 03.03.1963 (no. coll. 5101 ♂♀, N, MNINGA) (Papadopol, 1964; Papadopol & Tâlpeanu, 1987); Thönen (1968) observed the species at 1200-1300 m altitude in the Cindrel Mountains, reported by Klemm & Kohl (op. cit.); we observed it in Valea Mică, near Gura Râului, 4.07.2008; S, sr, Br; A4B-RGO; ■ *Carduelis carduelis* (Linnaeus, 1758) – a flock of five specimens observed at Gura Râului on 19-20.09.2007 and two specimens on 3.07.2008; S, OI, Br; A4B-RGO; ■ *Carduelis chloris* (Linnaeus, 1758) – a male collected from the Cindrel Mountains on 20.06.1922 (no. coll. 65/1030 N, MS) (Stein-von Spiess, op. cit.); S, Br; A4B-RGO; ■ *Carduelis spinus* (Linnaeus, 1758) – flocks up to 20 specimens observed at Iezerul Mare and Iezerul Mic in the summer months 1965-1970 by Zsivanovits (1972), data taken over by Klemm & Kohl (op. cit.); S, PM, OI, Br; A4B-RGO; ■ *Carduelis cannabina* (Linnaeus, 1758) – the species was observed on 29.12.1984 at Păltiniș, 1630 m altitude (Klemm & Kohl, op. cit.) and on 4.07.2008 also at Păltiniș; S, PM, Br; A4B-RGO; ■ *Coccothraustes coccothraustes* (Linnaeus, 1758) – a specimen collected by P. Zsivanovits from Câmpia Poplăcii on 18.12.1967 (no. coll. 4864 B); observed at Gura Râului on 20.09.2007; S, Br; A4B-RGO; ■ *Loxia curvirostra* Linnaeus, 1758 – it was observed by Bielz in the Cindrel Mountains at Piatra Albă and by Kimakovicz at Prejba (Bielz, op. cit.); two specimens collected at Orlat: in 1879 (no. coll. 110/1086 ♂ N, MS) and on 20.08.1886 (no. coll. 114/1090 ♀ juv., N, MS) (Stein-von Spiess, op. cit.); Zsivanovits (1972) observed the Crossbill in the Cindrel Mountains, summers of 1965-1970; at Păltiniș on 4.07.2008; S, Br; ■ *Pyrrhula pyrrhula* (Linnaeus, 1758) – a pair at Iezerul Mic, Zsivanovits (op. cit.); observed at Păltiniș on 4.07. 2008; S, Br.

Abbreviations:

N = mounted naturalized item; B = skin; T = thorax; H = hyoid bone; C = skull; MS = ornithological collection of the Museum of Sibiu; MC = ornithological collection of the Museum of Cluj; MNINGA = ornithological collection of “Grigore Antipa” Museum.

Phenology: S = sedentary; M = migratory; S-M = migratory sedentary (for the species whose females and young migrate, and the males winter); PM = partially migratory; OV = summer guest; OI = winter guest; Br = nestling; NBr = it doesn't nestle in the area; T = occurs in the area only in transit during migration; sr = rare species in Romania; D = vanished in the Romanian fauna.

Protection statute: RGO (with annexes) = Romanian Government Ordinance No. 57/2007, on the regime of the protected areas, conservation of the natural habitats, of wild flora and fauna: A3-RGO = bird species whose conservation needs the establishing of the areas of special avifaunal protection; A4B-RGO = bird species which need strict protection; A5C-RGO = bird species of communal interest whose hunting is allowed; A5D-RGO 57/07 = bird species of communal interest whose commercialization is allowed; A5E-RGO = bird species of communal interest whose commercialization is allowed in special conditions.

CRVR = Red Book of Vertebrates from Romania/2005.

In the 26 published studies and notes on the avifauna of the Cindrel Mountains, during more than 135 years of observations in this area, we found 92 species. Within two years, September 2007 and July 2008, we observed 38 species;

this is the most recent study here. Some of the observed species, collected before and after 1900 as *Haliaeetus albicilla*, *Aquila heliaca*, *Circaetus gallicus* have not been seen; *Aquila chrysaetos*, *Hieraaetus pennatus* are rare and have a critical situation in Romania; *Gyps fulvus* and *Gypaetus barbatus* are extinct now from the Romanian fauna. Also, for some species like *Lyrurus (Tetrao) tetrax* we can surely assert that we haven't found specimens collected from the Cindrel Mountains in the collections of the museums of natural sciences, and the observations made on this species are still doubtful as Klemm & Kohl remarked (op. cit.). The Cindrel Mountains is an important migration way for *Ciconia ciconia* and *Delichon urbica* and *Hirundo rustica*. Also, in the adjacent area of this region there is an important population of *Ciconia ciconia*, over 20 pairs at Cristian, Orlat and Răşinari.

The large number of bird species observed along time as well as the varied fauna and special flora made local authorities to declare this area Natural Park, in 1994, with a surface of 10 000 ha. Recently, two sites of communal importance were declared as well an area of special avifaunal protection in the "Natura 2000" network of Romania.

MAMMALS (Class MAMMALIA)

Călinescu (1931) pointed out a series of data on the biology and distribution of the mammals in Romania, with the mention of some localities just in the Cindrel Mountains – that time named Cibin Mountains (Tab. 1). Călinescu (1956) referred to the taxonomy, distribution and biology of the species *Sciurus vulgaris* Linnaeus, 1758 and *Spermophilus citellus* (Linnaeus, 1766). In the list of the mammals present in the Romanian fauna, Vasiliu & Şova (1968) reported also the species *Crocidura russula russula* (Hermann, 1780) from Sibiu and Avrig (Sibiu county) as well as *Myotis daubentoni* (Kuhl, 1817) from Sibiu. In his study on the birds which nestle and the mammals which invade the Magpie (*Pica pica*) nests, Cătuneanu (1982) also presented the case of the species *Eliomys quercinus* Linnaeus, 1758 occurred in May – June 1952, in the "Catarina" oak forest (Sibiu).

Studying the micromammals (insectivores and rodents) of the Sibiu Depression, Benedek (2002) remarked the presence of 29 species. Benedek (2004) studied the micromammals (insectivores and rodents) from the Sibiu Depression, but basing on the pellets of *Strix aluco* and *Asio otus*, and observed the difference in the feeding habit of the two bird species of prey.

Table 1

Mammal species mentioned by Călinescu (1931) from Transylvania.

No.	Species	Locality
1	<i>Erinaceus roumanicus</i>	Sibiu, Guşteriţa
2	<i>Crocidura leucodon</i>	Sibiu
3	<i>Crocidura russula</i>	Sibiu, Avrig
4	<i>Neomys fodiens</i>	Cibin Mt., Sălişte, Cîsnădioara,
5	<i>Sorex araneus tetragomurus</i>	Sibiu, Guşteriţa, Avrig, Cârţişoara
6	<i>Sorex minutus</i>	Sibiu, Guşteriţa-Sibiului
7	<i>Rhinolophus ferrum-equinum</i>	Miercurea-Sibiului
8	<i>Eptesicus serotinus</i>	Sibiu
9	<i>Myotis daubentoni</i>	Sibiu
10	<i>Nyctalus noctula</i>	Sibiu
11	<i>Pipistrellus pipistrellus</i>	Sibiu, Guşteriţa-Sibiului

Table 1 (continued)

No.	Species	Locality
12	<i>Lutra lutra</i>	Cibinului
13	<i>Mustela erminea aestiva</i>	Sibiu
14	<i>Ursus arctos</i>	Cibin Mt.
15	<i>Cricetus cricetus</i>	Sibiu
16	<i>Arvicola amphibius</i>	Sibiu
17	<i>Microtus arvalis levis</i>	Sibiu
18	<i>Micromys minutus</i>	Sibiu
19	<i>Glis glis</i>	Cibin Mt.
20	<i>Muscardinus avellanarius</i>	Sibiu, Gușterița
21	<i>Spalax hungaricus hungaricus</i>	County of Sibiu
22	<i>Capreolus capreolus</i>	Cibin Mt.

Mammal species find good food and shelter conditions in the Cindrel Mountains, most of the ecosystem state resembling the natural one. But the grasslands near the Gura Râului commune disturb especially micromammals, being subjected to the anthropic pressure. But, in the afforested areas, only the forest exploitation and the means of heavy transport destroy the habitats, mammals being forced to refugee in the more quiet surrounding areas.

Table 2

Body measurements (in mm) and weight (in g) of small mammals collected from Cindrel Mountains.

MEASUREMENTS (mm)		SPECIES								
		<i>Sorex araneus</i> Linnaeus, 1758	<i>Sorex minutus</i> (Linnaeus, 1766)	<i>Neomys anomalus</i> Cabrera, 1907	<i>Myoxus glis</i> (Linnaeus, 1766)	<i>Clethrionomys</i> <i>glareolus</i> (Schreber, 1780)	<i>Microtus</i> <i>subterraneus</i> de Selys- Longschamps, 1836	<i>Apodemus agrarius</i> (Pallas, 1771)	<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	<i>Apodemus flavicollis</i> (Melchior, 1834)
Length	min.	61	45	66	9	40	72	74	69	85
	max.	67	65	79		95	83	101	102	105
	aver	62.3	59.94	72		84.22	78.4	89.25	85.84	96.66
Tail	min.	39	31.7		130	35	31	61	69	23
	max.	45	49			92	38	80	109	117
	aver	41.5	42.73	58		43.16	32.8	68.83	91.15	93.87
Hind foot	min.	12	10		85	13	14	18	21	24
	max.	12.5	17			19	15	19	24	25
	aver	12.1	12.61	18.5		17.90	14.8	18.6	22.15	24.25
Ear	min.	8	7	8.5	25	10	9	10.2	14	16
	max.	9	10	10		18	11	13	19	20
	aver	8.7	8.55	9.25		13.87	10.2	11.84	16.58	18.44

Table 2 (continued)

MEASUREMENTS (mm)		SPECIES								
		<i>Sorex araneus</i> Linnaeus, 1758	<i>Sorex minutus</i> (Linnaeus, 1766)	<i>Neomys anomalous</i> Cabrera, 1907	<i>Myoxus glis</i> (Linnaeus, 1766)	<i>Clethrionomys</i> <i>glareolus</i> (Schreber, 1780)	<i>Microtus</i> <i>subterraneus</i> de Selys- Longschamps, 1836	<i>Apodemus agrarius</i> (Pallas, 1771)	<i>Apodemus sylvaticus</i> (Linnaeus, 1758)	<i>Apodemus flavicollis</i> (Melchior, 1834)
Weight	min.	6.9	3.4	11.2	19	13.3	13.5	14.8	17	22
	max.	8	8.8	13.4		25	20	19	29	33
	aver	8.8	7	12.3		19.43	16.56	16.9	19.85	29.52
Sex	♂	1	20	1	1	17	4	6	5	4
	♀	4	19	1	1	14	1	0	8	5
No. specimens	1992	5	35	2	2	27	5	2	9	5
	2007- 2008	-	4	0		4	0	4	4	4
Total		111 specimens								

Basing on the previous reports, on the material preserved in the mammal scientific collection of “Grigore Antipa” National Museum of Natural History, on the field collecting and observations, we made the following list:

The list of the mammal species from the Cindrel Mountains which were observed, collected or cited in literature

ORD. INSECTIVORA, FAM. ERINACEIDAE: ■ *Erinaceus concolor* Martin, 1838: tp–in decline; s.o.n.–; s.o.i.–; FAM. TALPIDAE: ■ *Talpa europaea* Linnaeus, 1758: tp–stable; s.o.n.–; s.o.i.–; FAM. SORICIDAE: ■ *Sorex araneus* Linnaeus, 1758: tp–in drastic decline; s.o.n.–; s.o.i.– AIII BC; ■ *Sorex minutus* Linnaeus, 1766: tp–in drastic decline; s.o.n.–; s.o.i.– AIII BC; ■ *Neomys fodiens* (Pennant, 1771): tp–in drastic decline; s.o.n.– CRVR; s.o.i.– AIII BC; ■ *Crocidura suaveolens* (Pallas, 1811): tp–in drastic decline; s.o.n.– CRVR; s.o.i.– AIII BC.

ORD. CHIROPTERA, FAM. RHINOLOPHIDAE: ■ *Rhinolophus ferrumequinum* (Schreber, 1774): tp–in drastic decline; s.o.n.– L90/00; A 4A RGO 57/07; CRVR; s.o.i.– AI–DH; AII–DH; ■ *Rhinolophus hipposideros* (Bechstein, 1800): tp–in drastic decline; s.o.n.– L90/00; A 4A RGO 57/07; CRVR; s.o.i.– AI–DH; AII–DH; FAM. VESPERTILIONIDAE: ■ *Myotis myotis* (Borkhausen, 1779): tp–in drastic decline; s.o.n.–; L90/00; A 4A RGO 57/07; CRVR; s.o.i.– AI–DH; AII–DH; ■ *Myotis blythii* (Tomes, 1857): tp–in drastic decline; s.o.n.– L90/00; A 4A RGO 57/07; CRVR; s.o.i.– AI–DH; AII–DH; ■ *Plecotus auritus* (Linnaeus, 1758): tp–in drastic decline; s.o.n.– L90/00; A 4A RGO 57/07; CRVR; s.o.i.– AII BC; AIV DH; ■ *Plecotus austriacus* (Fischer, 1829): tp–in drastic decline; s.o.n.– L90/00; A 4A RGO 57/07; CRVR; s.o.i.– AII BC; AIV DH; ■ *Eptesicus serotinus* Schreber, 1774: tp–in drastic decline; s.o.n.– L90/00; A 4A RGO 57/07; CRVR; s.o.i.– AII BC; AIV DH; ■ *Miniopterus schreibersii* (Kuhl, 1819): tp–in

decline; s.o.n.- L90/00; A 4A RGO 57/07 CRVR; s.o.i.- AI-DH; AII-DH; ■ *Nyctalus noctula* (Schreber, 1774): tp-stable; s.o.n.- L90/00; A 4A RGO 57/07; s.o.i.- AII BC; AIV DH; ■ *Pipistrellus pipistrellus* (Schreber, 1774): tp-stable; s.o.n.- L90/00; A 4A RGO 57/07; s.o.i.- AIII BC; AIV DH.

ORD. LAGOMORPHA, FAM. LEPORIDAE: ■ *Lepus europaeus* Pallas, 1778: tp-stable; s.o.n.- A1 L 103/96; A 5B RGO 57/07; s.o.i.- AIII BC.

ORD. RODENTIA, FAM. SCIURIDAE: ■ *Sciurus vulgaris* Linnaeus, 1758: tp-stable; s.o.n.- A1 L 103/96; A 5B RGO 57/07; s.o.i.- AIII BC; FAM. MYOXIDAE: ■ *Myoxus glis* (Linnaeus, 1766): tp-in decline; s.o.n.- A1 L 103/96; A 5B RGO 57/07; s.o.i.- AIII BC; ■ *Muscardinus avellanarius* (Linnaeus, 1758): tp-in decline; s.o.n.- A1 L 103/96; A 5B RGO 57/07; s.o.i.- AIII BC; AIV DH; FAM. ARVICOLIDAE: ■ *Clethrionomys glareolus* Schreber, 1780: tp-stable; s.o.n.-; s.o.i.-; ■ *Arvicola terrestris* (Linnaeus, 1758): tp-in decline; s.o.n.- CRVR; s.o.i.-; ■ *Microtus* (= *Pitymys* Mc Murtrie, 1831) *subterraneus* (de Sélys-Longschamps, 1836): tp-in decline; s.o.n.-; s.o.i.-; ■ *Microtus arvalis* (Pallas, 1779): tp-stable; s.o.n.-; s.o.i.-; ■ *Microtus agrestis* (Linnaeus, 1761): tp-stable; s.o.n.- s.o.i.-; ■ *Ondatra zibethicus* (Linnaeus, 1766): tp-increase; s.o.n.- A1 L 103/96; A 5B RGO 57/07; s.o.i.-; FAM. MURIDAE: ■ *Apodemus sylvaticus* (Linnaeus, 1758): tp-increase; s.o.n.-; s.o.i.-; ■ *Apodemus flavicollis* (Melchior, 1834): tp-in decline; s.o.n.-; s.o.i.-; ■ *Apodemus agrarius* (Pallas, 1771): tp-stable; s.o.n.-; s.o.i.-; ■ *Apodemus uralensis* (Pallas, 1811): tp-stable; s.o.n.-; s.o.i.-; ■ *Rattus norvegicus* (Berkenhout, 1769): tp-increase; s.o.n.-; s.o.i.-; ■ *Mus musculus* Linnaeus, 1766: tp-increase; s.o.n.-; s.o.i.-.

ORD. CARNIVORA, FAM. CANIDAE: ■ *Canis lupus* Linnaeus, 1758: tp-stable; s.o.n.- A1 L 103/96; A 3, and A 4A RGO 57/07; CRVR; s.o.i.- AII BC; AII HD; AII CITES; ■ *Vulpes vulpes* (Linnaeus, 1758): tp-stable; s.o.n.- A1 L 103/1996; A 5B RGO 57/07; s.o.i.-; FAM. URSIDAE: ■ *Ursus arctos* Linnaeus, 1758: tp-stable; s.o.n.- A1 L 103/96; A 3, and A 4A RGO 57/07; CRVR; s.o.i.- AII BC; AII DH; AII CITES; FAM. MUSTELIDAE: ■ *Meles meles* (Linnaeus, 1758): tp-in decline; s.o.n.- A1 L 103/96; A 5B RGO 57/07; s.o.i.- AIII BC; ■ *Martes martes* (Linnaeus, 1758): tp-in decline; s.o.n.- A1 L 103/96; A 5A RGO 57/07; CRVR; s.o.i.- AIII BC; AV DH; ■ *Mustela putorius* (Linnaeus, 1758): tp-stable; s.o.n.- A1 L 103/96; s.o.i.- AIII BC; AV DH; ■ *Mustela nivalis* Linnaeus, 1766: tp-in decline; s.o.n.- A1 L 103/96; A 5B RGO 57/07; s.o.i.- AIII BC; ■ *Mustela herminea* Linnaeus, 1758: tp-in drastic decline; s.o.n.- A1 L 103/1996; A 5B RGO 57/07; CRVR; s.o.i.- AIII BC; ■ *Lutra lutra* (Linnaeus, 1758): tp-in drastic decline; s.o.n.- A1 L 103/1996; A3 and 4A RGO 57/07; CRVR; s.o.i.- AII BC; AII DH; AI CITES; FAM. FELIDAE: ■ *Felis silvestris* Schreber, 1777: tp-in decline; s.o.n.- A2 L 103/96; A 4A RGO 57/07; CRVR; s.o.i.- AII BC; AIV DH; AII CITES; ■ *Lynx lynx* (Linnaeus, 1758): tp-in decline; s.o.n.- A1 L 103/1996; A3 and 4A RGO 57/07; CRVR; s.o.i.- AIII BC; AII DH; AII CITES.

ORD. ARTIODACTYLA, FAM. SUIDAE: ■ *Sus scrofa* Linnaeus, 1758: tp-increase; s.o.n.- A1 L 103/1996; A 5B RGO 57/07; s.o.i.-; FAM. CERVIDAE: ■ *Cervus elaphus* Linnaeus, 1758: tp-in decline; s.o.n.- A1 L 103/1996; A 5B RGO 57/07; CRVR; s.o.i.- AIII BC; AIV DH; ■ *Capreolus capreolus* (Linnaeus, 1758): tp-stable; s.o.n.- A1 L 103/1996; A 5B RGO 57/07; CRVR; s.o.i. AII BC.

Abbreviations:

tp = tendency of population evolution for each species; s.o.n. = national statute of protection; s.o.i. = international statute of protection; CRVR = Red Book of Vertebrates from Romania/2005.

A1 or 2 – L 103/1996 = Annex no. 2 from Law 103/1996 (with annexes) of hunting fund and game species protection: Annex No. 1 = Wild fauna of hunting interest, with hunting permission. Periods of hunting and the amount of identification in case of illegal actions; Annex No. 2 = Hunting mammal

and bird species with prohibited hunting as well as the amount of identification in case of illegal actions.

AI - IV DH = Annexes I - IV – EU Habitats and Species Directive (with annexes), 92/43/EEC with animal and plant species which need specific measures for habitat conservation.

AI - III BC = Annex III of Bern Convention/1979.

A I – II CITES = Convention on International Trade in Endangered Species of Wild Fauna and Flora. L 90/00 = Adhesion Law 90/2000 of Romania to the Agreement on the bat conservation in Europe, approved in London, on the 4th of December 1991.

RGO 57/07 (with annexes) = Romanian Government Ordinance No. 57/2007, on the regime of the protected areas, conservation of the natural habitats, of wild flora and fauna.

For the area of the Cindrel Mountains of the Southern Carpathians, 46 mammal species, which belong to 35 genera, 16 families, were collected and observed: Insectivora = three families with five genera/six species; Chiroptera = two families with seven genera/10 species; Lagomorpha = one family, one genus/one species; Rodentia = four families with 10 genera/15 species (Tab. 2); Carnivora = four families with nine genera/11 species; Artiodactyla = two families with three genera/three species. As regards the evolutionary tendencies of the mammal populations, only the representatives of five species tend to increase in number, and 15 species have stable population. A number of 12 species record a decline of their populations, 14 species are in drastic decline, this aspect presuming some protection measures of the preferred habitats by the diminishing and even stopping their fragmentation and destroying.

In the faunal diversity of birds and mammals of the area of the Cindrel Mountains there are species with a protection statute, included in the annexes of the national (32 species out of the reported 46) and international (30 species from the 46) legislation. The species *Arvicola terrestris*, *Ondatra zibethicus*, *Vulpes vulpes* and *Sus scrofa* are included only in the national legislation of faunal protection, and *Sorex araneus* and *S. minutus* are included only in the annexes of the international legislation.

By this study we offer an updated faunal list for the two vertebrate classes, necessary in this area where four protected areas of national or local importance were promulgated: three from the national network “Natura 2000” (ROSCI 0132-Middle Olt River – Cibin - Hârtibaciu; ROSCI085-Frumoasa; ROSPA 043-Frumoasa) and a protected area at the local level – Cindrel National Park (HCJ Sibiu 12/28.09. 1994).

DATE FAUNISTICE ASUPRA PĂSĂRIILOR (AVES) ȘI MAMIFERELOR (MAMMALIA) DIN MUNȚII CINDREL (ROMÂNIA)

REZUMAT

Numărul mare de specii de păsări și mamifere raportate din Munții Cindrelului indică o stare bună a diversității faunistice a celor două clase de vertebrate, atât sub aspect numeric (92 de specii de păsări și 46 specii de mamifere), cât și calitativ. Cele 92 de specii de păsări aparțin la 8 ordine și 30 de familii, din care peste 40 de specii sunt sedentare, 38 sunt migratoare, patru specii oaspeți de iarnă. Dintre mamifere, ordinul Insectivora este reprezentat prin șase specii din trei genuri aparținând la trei familii; pentru ordinul Chiroptera s-au raportat 10 specii din șapte genuri aparținând la două familii; Lagomorpha – o specie (dintrun gen al unei singure familii); Rodentia – 15 specii din 10 genuri aparținând la patru familii; Carnivora – 11 specii din nouă genuri aparținând la patru familii și Artiodactyla cu trei specii din trei genuri aparținând la două familii.

Sub aspectul statutului de ocrotire, 53 de specii de păsări sunt protejate (22 de specii necesită arii speciale de protecție, 19 specii au nevoie de protecție strictă, iar 12 sunt de interes comunitar); din cele 46 specii de mamifere, 30 au statut internațional și 32 au statut național de ocrotire. Întreaga

biodiversitate de păsări și mamifere din Munții Cindrel are nevoie de diminuarea și stoparea fragmentării și distrugerii habitatelor – condiții realizabile prin declararea în zonă a celor patru arii protejate, trei din rețeaua națională “Natura 2000” (ROSCI 0132-Oltul Mijlociu-Cîbin-Hărtibaciu; ROSCI085-Frumoasa; ROSPA 043-Frumoasa) și o arie protejată la nivel local - Parcul Național Cindrel (HCJ Sibiu 12/28.09. 1994).

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LITERATURE CITED

- BENEDEK, A. M., 2002 - Data on the mammal communities (Ord. Insectivora and Ord. Rodentia) in the Sibiu Depression (Romania). *Acta oecologica*, 9 (1-2): 1-24.
- BENEDEK, A. M., 2004 - Aspects regarding the small mammal communities (Insectivora and Rodentia) from the Sibiu Depression, based on *Strix aluco* and *Asio otus* pellets. *Acta oecologica*, 11 (1-2): 209-216.
- BIELZ, E. A., 1864 - *Charadrius morinellus* L., eine für Siebenbürgen neue Vogelart. *Verhandlung und Mitteilungen des Siebenbürgisches Vereins für Naturwissenschaften zu Hermannstadt*, 15: 56-58.
- BIELZ, E. A., 1886 - Ueber die Siebenbürgen vorkommenden Fledermäuse. *Verhandlung und Mitteilungen des Siebenbürgisches Vereins für Naturwissenschaften zu Hermannstadt*, 36: 76-84.
- BIELZ, E. A., 1888 - Die Fauna der Wirbeltiere Siebenbürgens nach ihrem jetzigen Bestande. *Verhandlung und Mitteilungen des Siebenbürgisches Vereins für Naturwissenschaften zu Hermannstadt*, 38: 7-22. (pp. 1-6 Einleitung).
- CĂLINESCU, R., 1931 - Mamiferele României. Repartiția și problemele lor biogeografice-economice. *Buletinul Ministerului Agriculturii și Domeniilor*, 251 (1): 1-103. (in Romanian)
- CĂLINESCU, R., 1956 - Sciuridele din R.P. R. Edit. Științifică, București: 1-123. (in Romanian)
- CĂTUNEANU, I. I., 1980 - Date interesante despre apariția păsării omătului, *Plectrophenax nivalis*, pe teritoriul României. *Studii și Cercetări. Muzeul Brukenthal, Sibiu*, 24: 461-470. (in Romanian)
- CĂTUNEANU, I. I., 1982 - Oiseaux et petits mammifères qui nichent dans les nids de pie bavarde (*Pica pica*). *Travaux du Muséum d'Histoire Naturelle "Grigore Antipa"*, 24: 211-231.
- CIOCHIA, V., 1992 - Păsările clocitoare din România. Edit. Științifică, București. 385 pp. (in Romanian)
- DADAY, E., 1885 - Jelentes az 1888 év nyarem veszet Chiropterologiai gyűjtesek eredmenyeirol es az erdely orsz muzeumegylet demevéergyij temenyenek jegyzekai. *Orvos – Természettudományi Erdelyt, Cluj*, 10: 3-9. (in Hungarian)
- GHERGHEL, P., 1988 - Catalogue of birds of the Museum of Zoology in Cluj-Napoca. *Studia Universitaria Babeș-Bolyai, Biologie*, 33 (2): 87-95.
- HEYEDER, R., 1911 – Korrespondenz (Brief vom 18.6. 1911 über mit R. Zimmermann im Zibin-Gebirge). *Aquila*, 18: 411-412.
- JACOBI, R., 1979 - Das Birkhuhn. *Lyrurus tetrrix tetrrix* L. *Nat. Forsch. (=Siebb. Archiv 14)*: 511-526.
- KAMNER, A., 1914 - Systematischer Katalog der Ornithologischen Sammlung des Siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt. *Verhandlungen und Mitteilungen des Siebenbürgischen Vereins Naturwissenschaften zu Hermannstadt*, 64 (1-6).
- KIMAKOVICZ, M., 1896 - Zur Vogelfauna Siebenbürgens-Verhandlung und Mitteilungen des Siebenbürgisches Vereins für Naturwissenschaften zu Hermannstadt, 45: 7-22.
- KLEMM, W., 1963 - Ciocârlia urecheată (*Eremophila alpestris*) pasăre clocitoare în Carpații României. *Natura, Seria biologie*, 15 (5): 91. (in Romanian).
- KLEMM, W., 1965 - Die Ohrenlerche Brutvogel in den Karpathen? *Der Falke*, 12 (6): 208-209.
- KLEMM, W., 1970 - Die Mornellregenpfeifer, *Eudromias morinellus* Boje, in Siebenbürgen. *Journal für Ornithologie*, 111 (1): 68-77.
- KLEMM, W., 1975 - Recensământul berzei albe (*Ciconia ciconia*) în împrejurimile Sibiului 1974. *Studii și Comunicări, Științele Naturii, Muzeul Brukenthal. Sibiu*, 19: 311-318. (in Romanian)
- KLEMM, W., S. KOHL, 1988 - Die Ornis Siebenbürgens. *In: S. Eck, H. Heltmann, E. Schüz, eds, Studia Transylvanica, Böhlau Verlag Köln*, 8 (3): 1-388.

- LEONHARD, J., 1812 - Systematica mammalium ac avium transylvanicarum enumeratio. (Cited after literature, without volume and pages).
- MATOUSEK, F., A. MOSANSKY, J. PALASTNY, 1970 - Ornithologische Notizen von einer Reise durch Rumänien, 16 (1): 123-228.
- MUNTEANU, D., A. PAPADOPOL, P. WEBER, 2002 - Atlasul Păsărilor clocitoare din România. Publicațiile Societății Ornitologice Române, Ediția a II-a, Cluj-Napoca: 1-152. (in Romanian)
- PAPADOPOL, A., 1964 - Contribuții privind unele păsări rare în R. S. România. Natura, 16 (2): 83-87. (in Romanian)
- PAPADOPOL, A., M. TĂLPEANU, 1987 - Catalogue des collections ornithologiques provenant de Roumanie conservées au Muséum d'Histoire Naturelle "Grigore Antipa". II. Charadriiformes - Passeriformes. Travaux du Muséum d'Histoire Naturelle "Grigore Antipa", 29: 213-316.
- PETRESCU, A., 2005 - Bird nest collection of "Grigore Antipa" National Museum of Natural History (Bucharest). Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa", 48: 349-370.
- SIBLEY, G. C., B. L. MONROE, 1990 - Distribution and taxonomy of Birds of the World. Yale University Press. New Haven & London: 1-940.
- STEIN - VON SPIESS, S., 1957 - Cocoșul de mesteacăn. Vânătorul și Pescarul Sportiv, 10 (5): 18. (in Romanian)
- STEIN - VON SPIESS, S., 1960 - Mornellregenpfeifer im Zibinsgebirge. Aquila, 66: 275, 309.
- STEIN - VON SPIESS, S., 2005 - Catalogus Ornithologicus. Studii și Comunicări. Științele Naturii (Supliment). Muzeul Național Brukenthal. Muzeul de Istorie Naturală, Sibiu: 2-301. Ediție revizuită și adăugită de Helga Stein și Irene Wurdinger. (in Romanian)
- THÖNEN, W., 1968 - Ornithologische Beobachtungen in der bulgarischen und Rumanischen Gebirgen. Ornithologische Beobachtung, 68 (1): 11-17.
- VASILIU, G. D., C. ȘOVA, 1968 - Fauna vertebrata Romaniae. Muzeul Județean Bacău. Secția Științele Naturii, Studii și Comunicări (Partea a II-a): 1-296. (in Romanian)
- WEBER, P., D. MUNTEANU, A. PAPADOPOL, 1994 - Atlasul provizoriu al păsărilor clocitoare din România. Publicațiile Societății Ornitologice Rămâne. (in Romanian)
- ZSIVANOVITS, P. K., 1972 - Schița avifaunistică a regiunii Cindrel-Iezere. Studii și Comunicări, Științe Naturale, Muzeul Brukenthal, Sibiu, 17: 326-338. (in Romanian)
- ZSIVANOVITS, P. K., 1984 - Eine siebenburgische federrelief-Sammlung. Nat. Forsch. II (Siebb. Arch. 18): 207-219.

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