

## ON THE STATE OF RARE AND ENDANGERED DIURNAL BIRDS OF PREY IN MOLDOVA

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### Rezumat

Lucrarea dată oferă informații despre distribuția actuală și abundența a 19 specii de falconiforme în Republica Moldova. În baza cercetărilor sunt descrise principalele cauze datorită cărora multe specii de răpitoare de zi cândva comune acum sunt rare sau nu mai sunt semnalate. Se arată că distrugerea habitatelor naturale din cauza activităților umane, prin poluare, vânătoarea excesivă, deranjul direct și altele au dus la degradarea faunei actuale de falconiforme și dispariția unora dintre vulturii în habitatele lor de cuibărire din Codrii Centrali și Codri Tîgheci, în pădurile de luncă și insulare.

*Cuvinte cheie:* Falconiforme, specii rare, periclitare, distrugerea habitatului, impactul antropic.

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### Introduction

The degradation of populations of rare and endangered species of birds of prey and not only them is a worldwide problem. According to some reports in the past 500 years in the world died out about 150 species of birds, as shown by recent studies, the process continues at the present time. Today's rate of decline in the number of rare and endangered birds is only increasing. The reason for this is human activity: the destruction of natural habitats and pollution, excessive hunting, direct persecution etc. So according to the International Union for Conservation of Nature the list of rare and endangered birds has more than 1,200 endangered species, including 179 species that are considered threatened with extinction.

In Moldova the situation today with this group of birds is very depressing. When looking through the literature, you do not believe your eyes that at the beginning of the last century on our territory have been nested Black Vulture, Griffon Vulture, Serpent Eagle, Golden Eagle, Eastern Imperial Eagle, Red Kite, and large numbers of nesting birds of prey, such as Greater Spotted Eagle and Lesser Spotted Eagles, Booted Eagle was from 20 to 30 pairs [1, 10]. Other common species of birds of prey were distributed in almost all the forests of Moldova, in Central and Codrii of Tîgheci, in the floodplain and island forests, in forest and small forest curtains. Unfortunately, at the present time there in no facts for confirming the status of at least some presence on the territory of the republic of some of these species. Black Vulture and Griffon Vulture have never been marked on our territory during the last 50 years. Residence status of other species was replaced from "nesting" to "irregular nesting", "flying by", "accidentally flying in" and "disappeared".

### Material and methods

The study was done on territory of country, covers the period 2006-2012. Researches on distributions and number of raptors were accomplished in places of its former inhabiting in woods and on rocky sites of the rivers, and also the most significant PL were surveyed, the nests of all birds which were on PL support were recorded. During the field works both automobile and pedestrian routes were used from the end of March till July. The observations were done with binocular Yukon 8-24x50, telescope 100x1000. The nests location was fixed by GPS Garmin device, the places were indicated on maps, and then put in the general register. On the basis of field data maps of raptors nest location in different years were accomplished.

### Results and discussions

**Black Vulture - *Aegypius monachus* - *Vultur negru*.** At the beginning of the last century, this species nests in Moldova in the forest near Korneshti, and in the 1960s the black vulture was marked in a Prut River valley near the com. Cantemir, and a young bird was caught [10]. Those times, this vulture was met also in the winter. Since that time, there is no reliable information about breeding and meetings of Black Vulture in Moldova. In neighboring Ukraine several pairs breed in the mountainous part of Crimea. In Romania, this species is likely to have disappeared, though some visitation in the southern Romania from Bulgaria could not be excluded, where it is also very rare species as in entire Balkan Peninsula [7].

**White-backed Vulture – *Gyps fulvus* – *Vultur sur*.** According to some authors [19, 21] this bird nested on hilly costs of Dniester River near Soroca city in Moldova and in Ukraine. Later, at the beginning of XXth century this vulture could be met along the Dniester River, but did not nested [10]. At present there is no information on the meeting of these birds in Moldova. Several dozen pairs are still nesting in mountainous Crimea [23]. In Romania, previously met in some places in Transylvania and Dobrogea, but currently only two meetings of these birds in Dobrogea were registered [15]. The main reason for the disappearance of all the vultures that once lived in our territory - is the lack of carrion and other available food for these birds.

**Egyptian Vulture - *Neophron percnopterus* – *Hoitarul*.** Several pairs of this species bred in Moldova during last century on the rocky banks of Dniester and Reut Rivers. In 1975 were still nested 4-5 pairs [10, 18]. Now there are no records about the meeting with this vulture on our territory. The specific cause of the disappearance of the vulture, like the other 2 types of vultures, is, in our opinion, the disappearance of available food resources - open burial grounds, small poultry farms and colonies of gophers, and other factors that have occurred in the past in the breeding grounds of these birds. In neighboring countries (Ukraine and Romania) - formerly bred, and now is a rare "flying in" species [15, 23].

**Golden Eagle-*Aquila chryzaetos-Acvil de munte*.** Is a previously breeding species [1]. Now can be sporadically met during its migration. Was recorded very rarely during last five years during the nesting period, and also in the passage through the central part of Codrii. Several pairs nest in the Carpathians in neighbouring Ukraine [7, 23].

**Imperial Eagle-*Aquila heliaca-Acvil de câmp*.** In the middle of the last century in Moldova nested about 10 pairs of this species [1]. Last nest of this eagle was found in 1975 in the Cabac forest, rayon Nisporeni. In the last years during the nesting period

has not be recorded in Moldova. In Ukraine the main population nests in Crimea, but during the last years its numbers has increased in steppe regions, where it became to nest on forests belts and on poles of the power lines [23] (Червона книга України, 2009). In Romania was found in lowland forests.

**Tawny Eagle (Steppe Eagle) – *Aquila rapax* – *Acvil de step*** . The once-nesting species of our avifauna until the mid-twentieth century, which was regularly observed in the southern regions of the country [16]. In later years Steppe Eagle was observed in our country as a „flying in” species [10]. At the present time (at the beginning of the 2000s), this species was not met even once. In neighboring Ukraine, the population of the Steppe Eagle disappeared since the end of the 1970s [23].

**Spotted Eagle – *Aquilă clanga* – *Acvilă țipătoare mare***. The species is on the edge of disappearance from our wildlife. In the second half of the twentieth century, Greater Spotted Eagle was regularly observed during nesting period in forests on the Dniester, in Codrii and in forests on the Prut River, and on migration. In that time up to 5 pairs of these birds were nested [10]. There is currently a separate meeting with this species including nesting period in the vicinity of the reserves «Pădurea Domnească» and «Plaiul Fagului», in the Central part of Codrii, in the large forests on the Dniester River and south of the country. However, reliable data on the breeding of the Spotted Eagle in Moldova is currently unknown. They may even breed in the number of 1-3 pairs on the territory of Moldova. In Ukraine, the number of the Spotted Eagle declined significantly and now is about 10-20 pairs nest mainly in the north of the country [23]. In Romania, it formerly bred in many places, now there is no reliable data on the breeding of this species [15].

**Lesser Spotted Eagle – *Aquila pomarina* – *Acvil ip toare mic*** . It is very rare endangered species of avifauna of Moldova. Earlier, before the 1970-s this species was distributed in a number of several pairs in the floodplain forests along the Dniester River [10]. In later years in most floodplain and island forests was not observed. The main part of the population nested in Codrii with a density of 0.9 pairs per 100 sq.km of forest [18]. Now the number this eagle significantly reduced. It is possible that now in Moldova nest no more than 2-5 pairs in the valley of middle Prut River, in lower part of Dniester and in forests of central part of Moldova [14]. In Ukraine at the beginning of this century, the population size of this species was estimated at 1200-1500 pairs [23]. In Romania actual size of these birds is estimated at 400-800 pairs [15].

**Short-toed Eagle – *Circaetus gallicus* - *erpar***. Endangered species. In the last century up to the 1970s in Moldova Snake Eagle nest in the amount of 3-6 pairs, mostly in the forests of central Codrii [10]. Currently, it has repeatedly observed in the forests along the Dniester, in Codrii, in the lower reaches of the Prut as during migration and during the nesting period. However, there is not reliable data on the nesting of this species. In Ukraine, about 250-300 pairs of these birds nest, especially in the mountain areas in the Carpathian Mountains, in the forests of the steppe zone are met very rare [23]. In Romania less than 100 pairs of Short-toed Eagle nest across the country, mainly in the Carpathian Mountains, in eastern Transylvania, in Dobrogea, in general the number of this species decreases [15].

**Booted Eagle – *Hieraaetus pennatus* – *Acvil mic*** . A rare breeding species. Earlier, in the middle of the last century, the Booted Eagle was a common nesting species in

Moldova. During surveys carried out in the early 1980s, the density of nesting eagles in the forests averaged 1.2 pairs per 100 sq. km of forest [18]. In later years, the number of Booted Eagle continued to decline, and by the beginning of this century, it ceased to nest in many forests along the Dniester and Prut, in Codrii [10]. Now no more than 15-25 pairs nest in Moldova [14]. Most of the population of Booted Eagle nests in island and upland forests along the Dniester, rarely in Codrii of Tigheci and in the forests of the middle part of the Prut River within the boundaries of Moldova. On migration occurs in many places of the country. In Ukraine nest about 450-500 pairs of these eagles. Last years the stabilization of the number of this species in Ukraine is recorded [23]. In Romania about 30-80 pairs of Booted Eagle nest, although earlier this number was much higher. It habits mainly in the central and southern part of the country [15].

**Honey Buzzard – *Pernis apivorus* – *Viespar*.** Very rare breeding species. In the late 1970s the density of Honey Buzzard nesting in Codrii was 0.3 pairs per 100 sq. km. [18]. It is distributed very uneven on the territory of the republic, preferring light forest areas, with the presence of glades and deforested places, inhabits mainly floodplain and island forests and Codrii, where its population is higher. Now the population is decreasing. This is probably due to the deforestation of tall trees in floodplain and island forests, as well with the decreasing of the number of Hymenoptera – main food for feeding of nestlings. The number of birds varies from year to year and makes up from 5 to 10 pairs. In Ukraine Honey Buzzard is a common nesting species with relatively stable number [20]. In Romania is distributed sporadically: small number is recorded in hilly terrain and rarely can be met in the mountains and on the plains. Nests about 300 to 700 pairs [15].

**Red Kite – *Milvus milvus* – *Gaia ro ie*.** Endangered species. Bred in 1950s in Transnistria [1]. In the following years was seen very rarely during migration [18]. Now there is no reliable data on the presence of this species at the territory of the Republic of Moldova. In Ukraine can be met only on migration [23]. In Romania is not nesting in present, but can be rarely met during migration [15]. In recent years the breeding area of the species is narrowing obviously. The major part of its' population is Western Europe (Spain, France, Germany).

**Hen Harrier – *Circus cyaneus* – *Erete vân t*.** Rare flying in species. Earlier in the last century was considered a rare sedentary species, but reliable information about its' nesting is absent, however, the harrier was constantly observed during the breeding period in Transnistria and elsewhere [10]. At the present time is still vary rarely observed in all seasons of the year, and there is no any reliable information on nesting of the species in Moldova yet. In Ukraine, are nesting not more than 10-20 pairs of the harrier [23]. In Romania, this species was observed only in the passage and very rarely in winter [15]. Moldova is on the southern border of the breeding areal of the species, which in some extent determines the nature of its stay on our territory. The major part of the species' population is located in Russia.

**Pallid Harrier – *Circus macrourus* – *Erete alb*.** Endangered or disappeared species in Moldova. Previously was observed as very rare flying by and wintering species [10]. In recent years, presence of this species on our territory was not registered. In recent years in Ukraine is very rarely observed flying by. In Romania its' number also significantly reduced and reliable information about breeding of this species is

not present, although the possibility of reproduction of single pairs is allowed [15]. Taking into consideration the overall reduction of the species number and reduction of its breeding areal, it can be assumed, that the Pallid Harrier in near future will be out Moldova not only during nesting period, but also during periods of migration.

**Montagu's Harrier – *Circus pygargus* – *Erete sur*.** A rare nesting species. In the past, it was a rare nesting species in Moldova [1]. In recent years, it is regularly observed in nesting period in the Northern and middle part of the valley of the Dniester, and in the South near the Prut. Despite the fact, that the nests of this species has not been found, but the permanent presence of a male and female during nesting period in the same place, leads to the conclusion that in Moldova are nesting 2-4 pairs of Montagu's Harrier. In Ukraine the Montagu's Harrier was a common breeding species in the past, but in recent years its' population has decreased significantly, due to which it has been included in The Red Book of Ukraine [23]. In Romania possible nests 20-40 pairs [23].

**Osprey – *Pandion haliaetus* – *Vultur pescar* (*Uligan pescar*).** A very rare flying by and flying in species. In the middle of last century in Moldova were nesting no more than 5-7 pairs of this species [1]. In following years, the cases of nesting ospreys in Moldova were not observed, but it was met flying by on the various water bodies of Dniester and Prut. Currently, the osprey is observed annually during migration, as well as during nesting season on Dniester in village Lopatna region and within reserve Padurea Domneasca. On the territory of reserve Prutul de Jos appears during nesting season from Romania, where it nests. Reliable data on nesting of the species on our territory are not yet available. In Ukraine nests not more than 1-2 pairs in the North of the country [23]. In Romania, during migration occurs up to 100 specimens of birds, but the birds' nests were not found [15].

**White-tailed Eagle – *Haliaetus albicilla* – *Codalb*.** A rare endangered species. In the middle of last century in Moldova were nesting about 15 pairs of the Eagle. However, the number of the species has continued to decline in our and neighboring countries, and in the early 1970s', only 3 pairs were nesting in our territory [10]. In following years it has ceased to nest in our territory, but in early 2000s' the number of Eagles began to increase in the South-Western Europe, and in 2011 White-tailed Eagle was re-discovered during its' nesting. Found item was a nest with 2 chicks and in 2012 – with one chick within the reserve Padurea Domneasca, however during thinning tree with the nest was cut down at the end of the year. In 2013 the Eagle was nesting again on the Prut flood-lands below the dam on the Costesti water storage. Within the reserve Prutul de Jos were recorded 2 nests of the White-tailed Eagle [12].

The increase of this species number is also observed in Ukraine. In the delta of the Dniester River in 2011, 4 pairs of this species were nesting [22]. Currently, in Ukraine are nesting 100-120 pairs, mostly along the Dnieper River, in the East of the country and in the Black Sea region [23]. In Romania around 10-12 pairs are nesting, mainly in the south in the valley and delta of the Danube river [15].

**Saker Falcon – *Falco cherrug* - *oim dun rean*.** A very rare endangered species. Until the middle of the last century was considered a common species of birds of prey in our country and has been occurred on the whole territory. Recent studies have shown that the Saker Falcon began to nest on the electric main poles in Russia, Ukraine, Moldova

[8,9,11], and therefore emerged necessity to clarify the number and distribution of the Saker Falcon in Moldova. In following years the nesting population of Saker in Moldova was investigated since 2005. It was found overall redistribution of the nesting places for the period from 2000 to the present. The estimated number of nesting pairs at the end of last century and in 2005 had not changed and was about 10-13 pairs [17]. During 2005-2011 the number of species had decreased to 2 nesting pairs, which were located in the South of Moldova on the electric main poles. The Saker Falcon was met several times during nesting season in region of Gordinesti village (rayon Edinet), but nests have not been found. In addition, it was found that the number of nesting pairs and spatial distribution are changing every year and depend on the number of the ground squirrels colonies and number of its population [13,14]. In the investigation of an electric main – 330 kW, passing through the central part of Moldova from North to South, no any settlements of the Saker were found.

In Ukraine around 250-300 pairs are nesting, mainly in the southern part of the country [23]. In Romania, 2-6 pairs are presumably nesting in Dobrogea [15].

**Lesser Kestrel – *Falco naumanni* – *Vânturel mic*.** A very rare endangered species. In the past, the Lesser Kestrel was considered a rarely nesting on our territory species [1]. In recent years, it has been found only one nest of the Lesser Kestrel at the Reut River in 2008 and 2009 (Jurminskii, personal observation). At the present, data on the presence of this species in Moldova are not available. In Ukraine, Lesser Kestrel is a very rare species, occurred mainly in the Crimea [23]. In Romania is presumably nesting from 50 to 150 pairs [15].

Comparative status of rare and endangered species of raptors in different countries is given in the table below.

**Table 1. Categories of the conservation status of rare and endangered species of birds of prey.**

Species	Red Book					Nesting in Moldova
	IUCN	Europe	Moldova	Romania	Ukraine	
1	2	3	4	5	6	7
<i>Aquila chrysaetus</i>	LC	R	CR	EN	VU	
<i>Aquila clanga</i>	VU	EN	CR	CR	R	
<i>Aquila heliaca</i>	VU	R	CR	CR	R	
<i>Aquila pomarina</i>	LC	(D)	CR	VU	R	+
<i>Aquila rapax-nipalensis</i>	LC	(EN)	CR	CR	EN	
<i>Circus gallicus</i>	LC	(R)	CR	VU	R	
<i>Circus cyaneus</i>	LC	H	CR		R	+
<i>Circus macrourus</i>	NT	(EN)	CR	EN	EN	
<i>Circus pygargus</i>	LC	S	CR	EN	VU	+
<i>Falco cherrug</i>	VU	EN	CR	CR	VU	+
<i>Falco naumanni</i>	VU	H	CR	VU	EN	
<i>Haliaeetus albicilla</i>	LC	R	CR	CR	R	+
<i>Hieraaetus pennatus</i>	LC	(R)	CR	CR	R	+
<i>Milvus milvus</i>	NT	D	CR	VU	EN	

Table 1. (continuation)

1	2	3	4	5	6	7
<i>Neophron percnopterus</i>	EN	EN	CR	CR	EN	
<i>Pandion haliaetus</i>	LC	R	CR	VU	EN	
<i>Pernis apivorus</i>	LC	(S)	EN	VU		+

#### European Threat Status (2004)

CR-Critically Endangered

H-Depleted

EN-Endangered

L-Localized

VU- Vulnerable

DD-Data deficient

D-Declining

S-Secure

R-Rare

( )- Status provisional

IUCN Red List Categories:

EX - Extinct, EW - Extinct in the Wild, CR - Critically Endangered, EN - Endangered, VU - Vulnerable, LR/cd - Lower Risk/conservation dependent, NT - Near Threatened (includes LR/nt - Lower Risk/near threatened), DD - Data Deficient, LC - Least Concern (includes LR/lc - Lower Risk, least concern).

#### Conclusions

Results of inspection of territory of Moldova in search of nesting places of diurnal birds of prey have shown that the behaviour of a kind during the nested period has strongly for some of species.

We consider as one of principal causes of the given phenomenon decrease in food resources. For Saker Falcon an important role has played gradual decrease in number of a raven, as supplier of nests.

The destruction of natural habitats due to human activities, pollution, excessive hunting, disturbance directly and others have led to the degradation actual wildlife of falconiforme.

#### References:

1. Averin Yu.V., Ganya I.M., Uspenskii G.A. The Birds of Moldova, V. 2, Kishinev, "Știința", 1971. p. 79-141. (Rus)
2. Averin Yu.V., Ganya I.M., Zubkov N.I., Munteanu A.I., Uspenschii G.A. Birds. - Animal world of Moldova, Kishinev, "Știința", 1981. 335 pp. (Rus)
3. Atlasul păsărilor clocitoare din România. 2002. Societatea Ornitologică Română. Cluj-Napoca. 152pp.
5. Atlasul păsărilor clocitoare din Republica Moldova/ aut. Munteanu A., Zubcov N., Gusan G. et al. Institutul de Zoologie al Acad/ de Științe a Moldovei, Societatea Ornitologică din Rep. Moldova – Chișinău. 2010. 100 pp.
6. BirdLife International. Birds in Europe: population estimates, trends and conservation status. Cambridge, UK: BirdLife International. (BirdLife Conservation Series No. 12. 2004. 1160 pp.
7. Cartea Roșie a Vertebratelor din România //Muzeul Național de Istorie Naturală «Grigore Antipa», București, 2005. 260 pp.
8. Galushin V. and Moseikin V. Declining Saker Falco cherrug range and population in European Russia. 5th World Conference on Birds of Prey and Owls. Abstracts and Presentations. South Africa, 1998. p.18-19.

9. Galushin V.M. et al. Saker Falcon breeding range and populations in European Russia. In: Potapov E., Banzragch S., Fox N. and Barton N. (Eds) Saker Falcon in Mongolia: Research and Conservation. Proceedings of the 2nd International Conference of the Middle East Falcon Research Group. 2001. p. 34-43.
10. Ganya I.M., Zubkov N.I. Rare and threatened bird species of Moldova. Kishinev, Stiinta, 1989. 150 pp. (Rus)
11. Milobog Yu.V., Vetrov V.V. & Strigunov V.I. Present state of numbers of the Saker in Moldova. In: Theses of 12th Annual International Ornithological Conference of Northern Eurasia., Stavropol, 2006. pp.358-359. [in Russian]
12. Munteanu A., Cojan C. Rezervația «Prutul de Jos», Chișinău, 2012. 152 pp.
13. Munteanu A., Zubcov N., Movileanu D. On the Status of Saker Falcon (*Falco cherrug* Gray.) population in Moldova//Buletinul Acadmiei de Științe a Moldovei, Științele vieții., N 1 (301), 2007. p.99-105.
14. Munteanu A., Zubcov N., Tsurcanu V., Ragyov D. On the monitoring of Saker Falcon nesting in the Republic of Moldova. Buletinul A.Ș. a RM, Științele vieții, N 1 (310), 2010. p. 77-84.
15. Munteanu D. Pasari rare, vulnerabile si periclitate in Romania, Ed. Alma Mater, Cluj-Napoca, 2009, 160p.
16. . . Сельскохозяйственная зоология. Одесса. 1923. 436 pp.
17. . . Редкие и исчезающие виды птиц Молдавии и мероприятия по их охране. Изв. АН Туркмен. ССР, сер. биол. №4, 1979. с.44-47.
18. . . Хищные птицы и совы Молдавии, (Биология, охрана и практическое значение)// Автореферат дис. канд. биол. наук. Кишинев, 1983, 24с.
19. . . Заметки о птицах Бессарабии, //Тр. Бессараб. О-во естест. И любителей естествознания, Т 5, 1914, с. 159-178.
20. . . Современное состояние и тенденции численности хищных птиц юго-запада Украины//Материалы III конфер. по хищным птицам Восточной Европы и Северной Азии, г. Ставрополь: СГУ., Часть 2. 1999. p 127-130.
21. . . Список птиц центральной Бессарабии. // Протоколы заседаний общества любителей естествознания, антропологии и этнографии., т. 37, вып. 1, 1881, с. 78-82
22. . . Возвращение орлана-белохвоста в дельту Днестра //Рідкісні й зникаючі північно-західного Причорномор'я. Одеса, 2011. с.85-91.
23. Червона книга України. Тваринний світ /за ред. І.А. Акімова—Київ.: Глобалконсалтинг. 2009. 600 с.