



# INTERNATIONAL CONFERENCE



## “The Birds of Prey and Owls of Caucasus”

26-29 October  
Tbilisi, Abastumani, Georgia  
2011



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## **GOSHAWK (*Accipiter gentilis*), SPARROWHAWK (*Accipiter nissus*), LEVANT SPARROWHAWK (*Accipiter brevipes*) and SHIKRA (*Accipiter badius*) IN GEORGIA**

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The main aim of this communication is to present data on the status of 4 species of *Accipitridae* - Goshawk, Sparrowhawk, Lewant Sparrowhawk and Shikra at the territory of Georgia. Data were collected as a part of complex studies of birds of prey, which was carried out since 1973. Goshawk, Sparrowhawk and Lewant Sparrowhawk are breeding species. All known occupied territories were checked every year. Diets were analyzed by analyzing pellets and prey remains, collected at and around the nests and by means of direct observations in hunting territories. The identification of prey remains was undertaken with the help of prey specimens previously collected in the study area and collections kept in the Institute of Zoology. Data on numbers in some regions of Georgia were gathered by local volunteers participating in counts carried out in 1970-80s'. The general data on distribution, habitat selection, numbers, breeding biology, seasonal movements, threats, mortality are presented. Goshawk and Sparrowhawk traditionally used by local falconers "bazieri" in Western Georgia to hunt Common Quail *Coturnix coturnix*.

Goshawk (*Accipiter gentilis*). Uncommon in general, locally rare, year-round resident with local vertical movements (sub-species *Accipiter gentilis caucasicus* Kleinschmidt, 1923). For breeding prefers mature or middle-aged dense forests of various types. The present population may total to 240 - 250 breeding pairs. After decrease in 1950's-1970, moderate increase was registered in 1980's -1990s': 200-225 pairs were counted in 1970's, 220-235 – in 1980's and 220-250 in 1990's. Widespread but not numerous, passage migrant throughout of country. More common at lowlands of Western Georgia and in valleys of large rivers of East. Widespread winter visitor.

Sparrowhawk (*Accipiter nisus*). Widespread and common migratory breeder. Widespread and common on passage, especially at Black Sea coastal lowlands, Kolkheti Lowland and in valleys of large rivers. Quite common winterer in various woodlands at lowlands, plains, foothills, large rivers' valleys. Local population decreased since the middle of 20<sup>th</sup> century till 1980's due to intensive persecution but stabilized in the end of 1980's and increased since the early 1990's. Local population has increased from 400-550 pairs in 1970's, 500-600 pairs in 1980's to 500-750 pairs in early 1990's. Present stable population has been estimated perhaps 750-800 pairs.

Lewant Sparrowhawk (*Accipiter brevipes*). According to some historical data, species formerly was a local breeder in Eastern Georgia and probably extinct as a regular breeding species in the middle of 20<sup>th</sup> Century. No nests known during our researches in 1970's – 1980's, only about 20 records of non-breeding summer visitors were noted in 1975-1985. In early 1990's again become to nest, mainly in south-eastern parts of country - in Mtkvari (Kura) River valley, in lower parts of valleys of Alazani, Iori and Khrami rivers. At present estimated perhaps 15-20 breeding pairs, probably a little more. Inhabits old and middle-aged broad-leaved forests, old large parks and gardens. Vertical limits of breeding distribution are 2000 m a.s.l., usually 1000-1500 m.

Rare in spring to uncommon in autumn transit migrant. More widespread and common on fall passage (at least 10000 individuals per autumn season, probably in some years more), especially at

East Black Sea flyway (1000-2500 individuals/spring season and 3000-5000 individuals/fall in 1980's-1990's). Dates of passage: in spring – second half of April with peak in 3<sup>rd</sup> decade of April; in autumn–late August to 1<sup>st</sup> decade of October with peak in the mid-September. During last 30 years, the number of migrating individuals has increased.

Shikra (*Accipiter badius*). Occasional visitor to Georgia. Occurrence of Shikra in Georgia since early 1970's has been verified at least 15 times. The origin of these birds is not known. The lists of known records (locations, dates, number of birds, details of observations, etc.) are presented.

**Key words:** Georgia, *Accipitridae*, status of presence, distribution, habitat selection, numbers, breeding biology, feeding, seasonal movements, threats, mortality, conservation.

## SEASONAL MIGRATIONS OF BIRDS OF PREY ACROSS GEORGIA: RESULTS OF THE LONG-TERM STUDIES

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Based on data systematically collected during last 35 years the main results of complex study of raptors in Georgia are presented. Monitoring of migrating raptors using the counts in the most important migration corridors started in 1976. Visual observations were carried out every year in spring and in autumn in different sites of study area. Patterns of raptors' seasonal movements at the territory of Georgia were monitored regularly in 1976–1992, 1997-2002, 2005-2011. Counts were carried out every year in spring and in autumn from 1-4 constant counting stations in different areas during 52-67 working days every autumn season (704-782 hours or 8-14 hours every day) during 22-31 working days every spring (219-335 hours or 7–14 hours every day). According to data systematically collected since 1973, 35 raptor species were recorded during passages within the limits of study area. 28 species are regular typical migrants: European Honey Buzzard (*Pernis apivorus*), Black Kite (*Milvus migrans*), White-tailed Sea Eagle (*Haliaeetus albicilla*), Egyptian Vulture (*Neophron percnopterus*), Short-toed Eagle (*Circaetus gallicus*), Marsh Harrier (*Circus aeruginosus*), Hen Harrier (*Circus cyaneus*), Pallid Harrier (*Circus macrourus*), Montagu's Harrier (*Circus pygargus*), Goshawk (*Accipiter gentiles*), Sparrowhawk (*Accipiter nisus*), Levant Sparrowhawk (*Accipiter brevipes*), Common Buzzard (*Buteo buteo*), Long-legged Buzzard (*Buteo rufinus*), Rough-legged Buzzard (*Buteo lagopus*), Lesser Spotted Eagle (*Aquila pomarina*), Spotted Eagle (*Aquila clanga*), Imperial Eagle (*Aquila heliaca*), Steppe Eagle (*Aquila nipalensis*), Booted Eagle (*Hieraetus pennatus*), Osprey (*Pandion haliaetus*), Lesser Kestrel (*Falco naumanni*), Kestrel (*Falco tinnunculus*), Red-footed Falcon (*Falco vespertinus*), Merlin (*Falco columbarius*), Hobby (*Falco subbuteo*), Saker (*Falco cherrug*), Peregrine Falcon (*Falco peregrinus*). Six species - Crested (Oriental) Honey Buzzard (*Pernis ptilorhynchus*), Red Kite (*Milvus milvus*), Shikra (*Accipiter badius*), Bonelli's Eagle (*Hieraetus fasciatus*), Lanner (*Falco biarmicus*) and Eleonora's Falcon (*Falco eleonora*) are occasional passage visitors. Two species – Bearded Vulture (*Gypaetus barbatus*) and Golden Eagle (*Aquila chrysaetus*) are typical year-round residents with local altitudinal movements outside of breeding period. Two other species Eurasian Griffon Vulture (*Gyps fulvus*) and Cinereous Vulture (*Aegyptius monachus*) are nomadic species with wide

movements outside of breeding seasons; their movements on long distance are caused generally by a presence of food resources in concrete regions. Data on species composition, numbers, phenology, patterns of diurnal activity, main directions of passages, heights of flight, location of basic halting places and stop-over sites, correlations with weather conditions, some details of migratory behavior, etc. are given. Threats and limiting factors are discussed together with practical measures for raptors' conservation in modern conditions. Analysis of ringing data and review of bibliography and unpublished reports are presented. Our results suggest that (1) the territory of Georgia has a special importance for migrating raptors because of its specific location on the cross-roads between Europe and Asia on the way from breeding grounds in Fenno-Scandinavia, European Russia, Ural, West Siberia and Kazakhstan to the Mediterranean, the Middle East, African and South Caucasian wintering grounds; (2) the most important fly-ways and "bottle-necks" in Georgia are: Eastern Black Sea fly-way with a well known "Batumi bottle-neck" (up to 1000000 individuals of 34 species); "Mtkvari valley" (250000+, 26 spp.) "Alazani" (150000-200000+, at least 24 spp.); "Central Caucasian or Javakheti" (200000+, at least 25 spp.), several sites at watershed areas at Main Caucasian Ridge. Black Sea Eastern coastlands have a specific importance for migrating raptors; (3) particularly intensive is the fall passage with three well-distinguished waves; (4) during last decade up to 2000000 individuals of 35 raptor species per autumn season and up to 700000 individuals of 34 species were considered to migrate across Georgia; (5) especially three raptor species are widespread and very numerous fall migrants - Honey Buzzard (250000-700000 individuals per season), Buzzard, sub-species – *Buteo buteo vulpinus*, *Buteo buteo buteo*, *Buteo buteo menetriezi* (200000-600000) and Black Kite (80000-170000); (6) during the last two decades (since the middle of 1990's) the numbers of migrating birds of prey has increased, but numbers of Lesser Kestrel (*Falco naumanni*) and Saker (*Falco cherrug*) has decreased; (7) main threat is illegal shooting of migratory raptors; the practices of hawks and large falcons trapping for falconry also present one of the major raptors conservation problems in Georgia.

## **WINTERING OF RAPTORS IN GEORGIA: RESULTS OF LONG-TERM MONITORING**

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Data on wintering raptors at the territory of Georgia, collected since 1973 are presented. Counts were carried out in 1977-1991, 1997-1999, 2004 and 2006. Coverage of wintering areas were 45-60 % in 1977-1982, 75-85 % in 1983-1991, up to 40 % in 1997-1999, about 30 % in 2004 and 2006. The whole study area was divided into the six main counting sectors - western part of Kolkheti Lowland, eastern part of Kolkheti Lowland, Black Sea coastal lowlands and foothills in Ajaria, Black Sea coastlands in Abkhaszia (in 1973 - 1991), Mtkvari (Kura) River valley, Iori Plateau and surrounding semi-deserts) and from two to six sub-sectors (in different winters) with 21-28 counting plots and sites. Data on species composition, numbers, distribution, habitat selection, phenology, with results of mid-winter counts by years and separate regions as well as description of the most important wintering habitats are presented. Our study suggests that the territory of Georgia has a specific importance for wintering raptors, which are presented by 23 species. 18 species may be classified as regular winter visitors, 3 species are irregular winter visitors and 2 raptor species as occasional winterers. The total numbers of wintering individuals greatly fluctuated from 4400

individuals in hard, cold, snowy winters to 14700 individuals in mild, warm, snowless winters and directly correlated with the concrete general meteorological situation in surrounding regions, especially in foothills and steppes of Northern Caucasus, lower Don River valley and Volga River valley. Raptors are distributed at wintering habitats unevenly and prefer areas, favorable from point of view of food resources abundance and prey getting conditions. The most preferred wintering habitats are located in areas with warm and snowless winters, especially at western parts of Kolkheti Lowland, Black Sea coastal lowlands, in lower parts of large rivers' valleys of Black Sea basin (Rioni, Inguri, Khobi, Bzypi, Kelasuri, Psou, Chorokhi rivers) and Caspian Sea basin (Mtkvari, Iori, Alazani, Khrami rivers), around the non-freezing large lakes, at Iori Plateau, in semi-deserts of south-eastern areas, at Kartli Plain. The vertical limits of wintering habitats are 0–1000 meters above sea level, usually up to 600 meters above sea level. Solitary wintering raptors (goshawks, sparrowhawks, harriers, peregrines) were recorded in warm winters higher – up to 1700 m a.s.l. Sometimes wintering conditions are more favorable in anthropogenic landscapes, than in wild habitats (stable food resources, low level of weather impact, hampering feeding). Usually birds are concentrated in mosaic biotopes, thickly alternated by small forests, which are used as shelters against bad weather and night roosts. The Kolkheti Lowland should be considered as the most important wintering area, holding up to 60-70% of the wintering raptors, Black Sea coastal lowlands in Abkhazia and Ajaria hold up to 10-15%; other areas hold 15-30%. Highest numbers of wintering in Georgia birds of prey occurred from the late December to late February with a maximum in late January – first half of February. Black Kite (*Milvus migrans*) always was by far the most numerous wintering raptor species to Georgia (from 3000 to 12000 individuals). It has adapted to almost all lowland landscapes. But Hen Harrier (*Circus cyaneus*) practically in all winters dominated in Eastern Georgia (from 600 to 1700 individuals). Major threats and recommended conservation measures are discussed. Further study of the wintering birds of prey in Georgia is urgently needed; it's quite actually to continue regular surveys of wintering birds of prey, as effective methods of their monitoring.

**Key words:** Georgia, raptors, wintering grounds, species diversity, dates of presence, territorial distribution, habitat selection, numbers, movements, threats, mortality, problems of conservation.

## **THE ANALYSIS OF RECORDED CAUSES OF DEATH OF ADULT OF BIRDS OF PREY AND OWLS IN GEORGIA IN 1973 – 2011**

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11239 cases of death of adult raptors of 32 species and 467 adult owls of 8 species were recorded during study in 1973-2011 in Georgia. The recorded causes of mortality were the following:

Birds of Prey–11239 cases of 32 raptor species (4028 in 1973-1980, 5117 in 1981-1990, 1590 in 1991-2000 and 504 - after 2000): shooting (10032 cases for 32 species); trapping and killing (441 cases for 6 species), death on electricity cables (704 cases for 18 species), death on garbage dumps due of poisoning (34 cases for 7 species), death due of poisoning at poisoned meat baits (27 cases



for 8 species), death in traps with meat baits (22 cases for 5 species), victims of prey (21 cases for 6 species), collisions with technical constructions (16 cases for 5 species), collisions with vehicles (7 cases for 3 species), unidentified reasons (332 cases for 22 species). More detailed data are presented in Table 1.

Owls - in total 487 cases of 8 owl species were registered during collecting of data (128 in 1973-1980, 221 in 1981-1990, 89 in 1991-2000 and 49 - after 2000). 454 were adult birds and 33 were nestlings. Mortality cases recorded for owls were the following: illegal shooting - 384 cases (or about 79 %) of 9 species; collision with vehicles - 18 cases or 3,9% of 5 species; death on electricity cables - 12 cases for 3 species; poisoning from chemicals – 11 cases for 3 species; trapping and killing – 7 cases for 3 species; collisions with technical constructions - 7 cases for 4 species; victims of prey - 22 cases for 9 species; unidentified reasons - 26 cases for 4 species. The distribution of registered mortality cases of birds of prey and owls by seasons of years as well as by regions of Georgia are presented, analyzed and discussed. Human persecution, especially illegal shooting, should be considered as a basic threat to birds of preys and owls in Georgia. The highest level of illegal shooting of birds of prey and owls at the territory of Georgia was recorded at Black Sea coastlands (in Ajaria, Guria, Abkhazia), in some parts of Kolkheti Lowland (in Guria, Samegrelo), in Rioni River valley, in suburbs of large cities, in some other sites. Often wintering birds of prey and owls are shot in wintering areas. Beside that, there are some peculiarities regarding the protection of raptors, specific to Georgia, Falconry traditionally is very popular in some regions of Western Georgia and local falconers “baizeri” often play a very negative role. They trap a great number of hawks and sometimes large falcons. Control of their activities in modern conditions is difficult. The small number of professional ornithologists and amateurs in Georgia can not meet the needs of birds of prey protection. There are no recent data (since 1992) on situation with protection of birds of prey and owls from some regions of Georgia (Abkhazia and South Ossetia) According to the available information from these regions, the situation there is alarming.

**Key words:** Georgia, Raptors, Owls, cases of death in 1972-2011, shooting, trapping, falconry, poisoning, death in traps, problems of conservation.

**Table 1. Distribution of cases of death of adult birds of prey in Georgia by seasons of years in 1973 – 2011 years.**

Raptor species	Seasons				Total
	Winter	Spring passage	Nesting	Fall passage	
European Honey Buzzard, <i>Pernis apivorus</i>	-	19	41	1383	1443
Black Kite, <i>Milvus migrans</i>	302	58	72	366	798
White-tailed Sea Eagle, <i>Haliaeetus albicilla</i>	5	1	-	8	14
Bearded Vulture, <i>Gypaetus barbatus</i>	8	-	1	-	9
Egyptian Vulture, <i>Neophron percnopterus</i>	-	2	11	22	35
Eurasian Griffon Vulture, <i>Gyps fulvus</i>	22	-	9	-	31
Black Vulture <i>Aegypius monachus</i>	10	-	2	-	12
Short-toed Eagle <i>Circaetus gallicus</i>	-	1	3	12	16
Eurasian Marsh Harrier, <i>Circus aeruginosus</i>	166	6	9	73	254
Northern Harrier, <i>Circus cyaneus</i>	28	3	1	15	47
Pallid Harrier, <i>Circus macrourus</i>	-	1	-	11	12
Montagu's Harrier, <i>Circus pygargus</i>	-	2	-	25	27
<i>Circus cyaneus/macrourus/pygargus spp.?</i>	12	2	-	24	38
Unidentified harriers? <i>Circus spp.</i>	16	9	1	37	63

Goshawk, <i>Accipiter gentilis</i>	47	4	6	121	178
Sparrowhawk, <i>Accipiter nisus</i>	241	42	26	1812	2221
Levant Sparrowhawk, <i>Accipiter brevipes</i>	-	1	1	34	36
Sparrowhawk/Levant Sparrowhawk	-	-	-	7	7
Unidentified hawks? <i>Accipiter spp.?</i>	3	1	-	7	11
Common Buzzard, <i>Buteo buteo</i>	177	37	112	4241	4567
Long-legged Buzzard, <i>Buteo rufinus</i>	4	-	8	24	36
<i>Buteo butero/Buteo rufinus</i>	10	1	4	27	42
Rough-legged Hawk, <i>Buteo lagopus</i>	7	1	-	2	10
Unidentified buzzards, <i>Buteo spp.?</i>	12	3	8	25	48
<i>Buteo buteo/Pernis apivorus</i>	-	-	-	14	14
Lesser Spotted Eagle, <i>Aquila pomarina</i>	-	1	2	28	31
Greater Spotted Eagle, <i>Aquila clanga</i>	-	1	-	3	4
Unidentified spotted eagles, <i>A. clanga/pomarina</i>	-	5	1	106	112
Steppe Eagle, <i>Aquila nipalensis</i>	3	4	-	54	61
Spotted eagles/steppe eagle?	-	1	-	6	7
Imperial Eagle, <i>Aquila heliaca</i>	2	1	2	14	19
Golden Eagle, <i>Aquila chrysaetos homeyeri</i>	12	-	8	2	22
Unidentified large eagles, <i>Aquila spp.?</i>	3	5	5	61	74
Booted Eagle, <i>Hieraetus pennatus</i>	-	3	3	37	43
Osprey, <i>Pandion haliaetus</i>	1	2	-	8	11
Lesser Kestrel, <i>Falco naumanni</i>	-	-	-	4	4
Common Kestrel, <i>Falco tinnunculus</i>	21	18	37	296	372
Unidentified kestrels, <i>F.naumanni/tinnunculus?</i>	-	1	1	24	26
Red-footed Falcon, <i>Falco vespertinus</i>	-	3	-	44	47
Merlin, <i>Falco columbarius</i>	12	-	-	31	43
Hobby, <i>Falco subbuteo</i>	-	1	1	29	31
Unidentified small falcons, <i>Falco spp.?</i>	23	5	9	80	117
Saker, <i>Falco cherrug</i>	2	-	-	16	18
Peregrine Falcon, <i>Falco peregrines</i>	4	2	2	8	16
Unidentified large falcons, <i>Falco spp.?</i>	2	-	-	12	14
Unidentified large raptors, <i>Falconiformes spp.?</i>	28	4	4	21	57
Unidentified medium raptors <i>spp.?</i>	2	1	2	10	15
Unidentified small raptors, <i>Falconiformes spp.?</i>	10	4	7	137	158
Unidentified birds of prey, <i>Falconiformes spp.?</i>	16	11	7	44	78
<b>TOTAL:</b>	<b>1201</b>	<b>267</b>	<b>406</b>	<b>9365</b>	<b>11239</b>

## Assessment of the Conservation Status of Egyptian Vulture (*Neophron percnopterus*)

### in Armenia

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Data on Egyptian Vultures has been collected during summer-spring seasons of 1997-2011. The total population can be estimated as 52-56 pairs. Recordings of immature individuals are occasional. Mainly Egyptian Vultures are feeding on medium and small size carrion, often taking road kills and feeding on dumps. Although some nests regularly produce two fledglings, most of the nests produce only one. Threats include direct persecution and poisoning due to high level of lead contamination in some of the foraging areas.



## The Role of IBAs in Raptor Conservation in Armenia

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The Programme of Important Bird Areas (IBA) in Armenia was started factually in 2004, however the first 5 IBAs have been designated back in 1997 (IBA 2000). 13 additional IBAs have been designated subsequently.

At present a total of 18 IBAs are designated in Armenia. Geographically they cover evenly the entire area of the country - from southmost to northernmost regions of Armenia. Some IBAs contain only one landscape habitat, others stretch over all vertical zones. For instance Armash IBA is represented only with wetlands in semidesert zone. Metsamor IBA contains semidesert landscape fully occupied and modified by agriculture with some patches of wetland. Meghri IBA stretches from semidesert at 400 m above s.l. with dry subtropical climate up to the 3000 m and covers the zones of mountain steppe, juniper open woodlands and deciduous forests ending in alpine meadows. Gorayk IBA encompasses only an area of mountain steppe.

In some cases IBAs may form part of protected areas, in others they are fully protected. Some of identified IBAs formed the backbone of the various newly established protected areas in Armenia. For instance, Lake Arpi & Amasia IBAs have been used as selection criteria for creation of Arpi National Park, while Zangezur IBA formed the basis for the established Zangezur Sanctuary.

Throughout the existence of IBA programme in Armenia, we have monitored and compiled data for all identified IBAs. Breeding diurnal birds of prey are documented in all sites totaling 23 out of 28 raptor species known to occur in Armenia. Some IBAs such as Armash and Lake Arpi have records of only one breeding raptor, like Marsh Harrier (*Circus aeruginosus*) in Armash IBA or Montagu's Harrier (*Circus pygargus*) in Arpi. At the same some 22 raptor species occur in Khsrov IBA which include buzzards, vultures, hawks, eagles and various falcons. Apart from breeding raptor species, IBAs also host 6 more species of raptors wintering in Armenia which are Rough-legged Buzzard, Merlin, Saker Falcon, etc and 5 more species that occur during migration period, such as Greater Spotted Eagle and Steppe Eagle. Among the 7 nocturnal birds of prey documented in Armenia, 6 can be encountered in IBAs throughout the year and European Scops Owl in the breeding season.

To this end, considering all that has been described above, we may conclude that sites identified as IBAs are in fact entirely cover the main breeding grounds of the majority of raptor species in Armenia, as well as their wintering grounds and flyway passages which no doubt leaves a positive impact on their conservation. Along with this, natural ecosystems in IBAs should be priority targets for primary research, as they may provide a basic for creation of protected areas in their various forms.

## **Популяционная динамика хищных птиц Северного Кавказа,**

### **ее возможные причины и механизмы**

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На Северном Кавказе, включая горную часть и степное Предкавказье к югу от Кумо-Маньчской долины, достоверно или предположительно гнездится 28 видов хищных птиц. Мониторинг их популяций, ведущийся в разных регионах в течение последних 30-40 лет (Витович, 1984, 1985; Тельпов и др., 1984, 1989; Комаров, 1985; Тильба, 1985, 1995; Мнацеканов, 1989, 1990; Вуккерт, 1995; Хохлов, 1995; Ильях, 1997, 2008; Джамирзоев и др., 2000; и др.), в том числе наши исследования 2000-2010 гг., свидетельствуют о постоянных изменениях численности и ареалов многих видов. Эти трансформации обусловлены как антропогенными, так и естественными факторами, но их адекватное восприятие зачастую затруднено недостатком фактических материалов и слабой изученностью экологии птиц.

В последние десятилетия в Предкавказье практически исчезли на гнездовье степной лунь (1950-60-е годы) и скопа (1980-90-е годы). Лунь был уничтожен, вероятно, родентицидами, а скопа вытеснена расселяющимся орланом-белохвостом. Современные сведения об их гнездовании на Северном Кавказе фактически не подтверждены или недостоверны. На грани исчезновения находится также степной орел, популяция которого на сопредельной территории Калмыкии из-за сукцессионных изменений биоценозов в 1990-е годы сократилась примерно на порядок (Белик, 2004). Но поскольку вымирание всех взрослых орлов за столь короткий срок вряд ли возможно, следует предполагать их откочевку в более благоприятные районы (в места зимовок?).

В степных районах из-за значительного снижения численности врановых птиц и их старых гнезд (Белик и др., 2010) продолжают сокращаться популяции обыкновенной пустельги и, особенно, кобчика. Но одиночные пары пустельги всё шире осваивают гнездование в городах, и поэтому снижение ее численности менее заметно, чем исчезновение колониальных гнездовий кобчика в рощах и лесополосах. Продолжает сокращаться гнездовая численность также у черного коршуна, что заставило внести его в региональные Красные книги Астраханской обл. и Калмыкии (Реуцкий, 2004; Музаев и др., 2010). Причины его исчезновения неясны, но наиболее вероятно влияние загрязнения окружающей среды (водоемов, обочин дорог и др.) нефтепродуктами, тяжелыми металлами и другими поллютантами.

Популяции остальных степных и лесостепных видов хищных птиц сейчас относительно стабильны или демонстрируют явный рост. Особенно сильно выросла численность орлана-белохвоста, практически восстановившего свой ареал в Предкавказье (Белик, 2007; Белик и др., 2008). Заметно увеличилась численность и расширился ареал также у тетеревики, змеяда, курганника, обыкновенного канюка, могильника и, по-видимому, у малого подорлика. Рост популяций этих крупных птиц, нередко наблюдающийся на фоне ухудшения их кормовой базы, однозначно связан с усилением законодательной охраны пернатых хищников и снижением их гнездовой и, особенно, постнатальной смертности.

Расселение по степным лесам Предкавказья, наблюдается и у перепелятника, что тоже обусловлено, очевидно, ростом его региональной популяции. А восточнопредкавказская популяция тювика, в отличие от сокращающейся донской популяции, демонстрирует резкий рост, связанный прежде всего с его переходом к синантропному образу жизни (Федосов, 2006; Белик, Федосов, 2010). В 2000-е годы заметно увеличила численность и частично восстановила былой ареал также восточнопредкавказская популяция степной пустельги, облигатно связанной сейчас с жилыми и хозяйственными постройками человека (Джамирзоев и др., 2008). На восстановлении ее популяции, кроме усиления охраны хищных птиц, в 1990-2000-е годы сказалось, вероятно, также значительное снижение загрязнения природной среды инсектицидами.

#### **Хищные птицы Дагестана по данным экспедиционных исследований 2009 года**

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Дагестан – один из крупнейших регионов Северного Кавказа (50,3 тыс. км<sup>2</sup>), почти равный суммарной площади Чечни, Ингушетии, Северной Осетии, Кабардино-Балкарии и Карачаево-Черкесии, а по разнообразию ландшафтов значительно превосходящий их. Но современная фауна этого региона, в том числе хищные птицы изучены сравнительно слабо (см.: Джамирзоев, Ильюх, 1999; Джамирзоев и др., 2000, 2009; Белик и др., 2002; Джамирзоев, Исмаилов, 2003; Букреев и др., 2007).

В мае 2009 г. нами была совершена рекогносцировочная поездка по Дагестану, основной целью которой было знакомство с характерными ландшафтами, а также поиск и учеты хищных птиц, позволившие значительно уточнить состояние популяций ряда редких видов. Маршрут экспедиции: Южно-Сухокумск – Кунбатар – Терекли-Мектеб (3.05.) – Кочубей – Тушиловка – Новый Чечень (4.05.) – Кизляр – Бабаюрт – Сулак – Шамхал – Буйнакск (5.05.) – Параул – Леваша – Гергебильское вдхр. на р. Каракойсу (6.05.) – Карадах – Кособ – Карадах – Аракани – Буйнакск – Чиркей (7.05.) – Кизильорт – Кизляр – Тарумовка – Арсланбек – Кумли – Терекли-Мектеб – Карагас (8.05.).

Общая протяженность автомаршрута составила 1253 км, из них 322 км по Ногайским степям (их площадь 10,5 тыс. км<sup>2</sup>), 425 км по Терско-Сулакской низменности (ее площадь 11,5 тыс. км<sup>2</sup>), 277 км в сухих предгорьях и низкогорьях и 229 км в горах Внутреннего Дагестана. На маршруте отмечено 23 вида хищных птиц. Приводимые ниже оценки их численности представляют минимальные показатели, поскольку не учитывают несомненные пропуски на автомаршрутах, а также меняющуюся активность птиц в разное время суток и при разной погоде. Ширина трансекты для них определялась эмпирически в поле.

*Pandion haliaetus*. Скопа, поедавшая рыбу, встречена 4.05. у с. Тушиловка в дельте Терека близ Каспия. По-видимому, холостая особь.

*Pernis apivorus*. У г. Буйнакск 6.05. наблюдались 2 осоеда, а 8.05. у с. Чиркей и г. Кизляра еще 2 птицы. Это были, по-видимому, мигранты, пролет которых начался 2.05. еще в Ростовской обл.

*Milvus migrans*. 3.05. учтен 1 коршун в степи у г. Южносухокумска и 4 особи близ с. Терекли-Мектеб на ночевке. В дельте Терека 4.05. встречены 2 одиночки, а 8.05 – 1 птица. Близ г. Буйнакска 6.05. отмечены 2 особи и 8.05. – 1 птица. По-видимому, всё это – поздние мигранты. Гнездовья не выявлены.

*Circus pygargus*. 3-8.05. были обычны пролетные птицы. На равнине учтено 27 особей (5♂ad.), а в горах – 10 особей (3♂ad.), мигрировавших на север. Близ с. Терекли-Мектеб 4.05. дважды наблюдались возможно гнездовые пары.

*Circus aeruginosus*. В дельте Терека 4 и 5.05. встречено по 1 птице, а 8.05. – 8 особей. В горах 6 и 8.05. отмечены 2 пролетные птицы.

*Accipiter nisus*. В горах 6.05. встречены 2 мелких ястреба, предположительно определенные как перепелятники.

*Accipiter brevipes*. Дважды отмечен 4.05. в лесопосадках у с. Терекли-Мектеб, а 5.05. пара наблюдалась в галерейных пойменных лесах в дельте Терека у с. Бол. Арешевка. Маршрутный учет скрытных тювиков был очень неполон.

*Buteo rufinus*. В Ногайских степях найдены 2 гнезда (у с. Ленин-аул и между с. Арсланбек и с. Кумли), встречены 2 пары (у с. Кумли и с. Баранча на западной границе ареала) и 2 одиночные птицы. Обилие в южной лесистой половине Ногайской степи, при ширине трансекты 2 км, составляет 0,9 пар/100 км<sup>2</sup>, а общая численность – около 50 пар. В дельте Терека найдено 1 гнездо (на опоре ЛЭП близ с. Бабаюрт) и встречена 1 птица (между с. Кочубей и с. Тушиловка). В сухих предгорьях найдено 1 гнездо (на скалах у с. Параул) и отмечено 7-9 гнездовых участков. Гнездиться в предгорьях курганник начал совсем недавно (Букреев и др., 2007), и очертить его ареал там трудно. В глубине Внутреннего Дагестана он пока отсутствует.

*Buteo buteo*. 3-5.05. шел активный пролет, а вечером 4.05. в дельте Терека на 78 км учтено 37 птиц, осевших на ночевку среди редколесий и кустарников. В горах 6-7.05. учтено 27 птиц на 378 км, но многие из них тоже были, вероятно, пролетные. Утром 8.05. у с. Чиркей на север пролетела еще 1 птица.

*Circaetus gallicus*. 5-6.05. в предгорьях учтены 3 змеяда (р. Шураозень; г. Буйнакска, с. Леваши), а 8.05. в дельте Терека – 2 птицы (с. Казмаул; с. Новониколаевка). По-видимому, это были местные самцы на гнездовых участках (Белик, 2010). При ширине трансекты 0,5 км, обилие в сухих горах составило 2,2 пар/100 км<sup>2</sup>, а в дельте Терека – 0,9 пар/100 км<sup>2</sup>.

*Hieraetus pennatus*. Отмечен 6.05. в предгорьях у г. Буйнакска. Характер пребывания остался неясен. (Еще 1 птица наблюдалась 10.05.2002 близ г. Кизляра, где орлы-карлики могли гнездиться в пойменных лесах).

*Aquila nipalensis*. Возможно гнездовая птица встречена 4.05. в песках к северо-востоку от с. Терекли-Мектеб. В дельте Терека вечером 4.05. наблюдались 2 скопления из 8 и 14 птиц близ с. Тушиловка и 1 птица – у с. Новый Чечень. Всё это были, очевидно, холостые пролетные птицы, осевшие на ночевку.

*Aquila pomarina*. В дельте Терека 5 и 8.05. учтено 7 одиночных птиц, в том числе 1 – с кормом и 1 – токовавшая над лесом. Из этих птиц 4 орла отмечены в окрестностях г. Кизляр, а остальные – у с. Серебряковка, Казмаул, Карабаглы. При ширине трансекты 2 км, обилие птиц составило там 0,8 особей (пар) на 100 км<sup>2</sup>, а общая численность – около 100 пар.

*Aquila chrysaetos*. Нередок в горах. 6-7.05. найдены 3 жилых гнезда (2 – близ г. Буйнакск в 3 км друг от друга; 1 – у с. Леваши) и учтено до 5 гнездовых участков. Еще 1 гнездо на скалах у с. Аракани, известное нам с 2002 г., оказалось брошено. При ширине трансекты 1 км, обилие в горах составило 1,6 пар/100 км<sup>2</sup>.

*Aquila heliaca*. Весьма обычен в южной, облесенной половине Ногайских степей (0,6 гнезд/100 км<sup>2</sup>), на Терско-Сулакской низменности (0,9 гнезд/100 км<sup>2</sup>) и в сухих предгорьях (1,1 гнезд/100 км<sup>2</sup>). За 6 дней в Дагестане найдено 13 жилых гнезд, 1 старое гнездо, возле которого держалась взрослая птица, и 2 свежих гнезда, на которых орлов не было. Еще 1 гнездо, наблюдавшееся издали, и 1 гнездовой участок с 3 гнездами в лесополосах остались не обследованы. Кроме того, в разных районах на трансекте 2 км шириной учтено 16 охотившихся птиц, из которых не менее 6 орлов держалось на гнездовых участках. Молодые птицы встречены всего 2 раза. В сухой Буйнакской котловине 4 гнезда устроены на металлических опорах высоковольтных ЛЭП; еще одно занятое орлами гнездо на ЛЭП было осмотрено там в феврале 2007 г. Одно из гнезд близ г. Буйнакск располагалось всего в 2 км от жилого гнезда беркута. В гнезде близ с. Кумли 8.05. было два 5-7-дневных птенца и поеди (5 гигантских слепышей и 1 розовый скворец). Собранные нами данные позволяют оценить численность карагуша на юге Ногайской степи как минимум в 30-50 пар, а на приморской низменности – 100-130 пар. Предгорная популяция значительно больше, но для расчета ее численности необходимо точнее оконтурить границы ареала. Наши оценки на порядок превышают данные Г.С. Джамирзоева с соавт. (2009), указывавших всего по 15-20 пар на равнине и в горах Дагестана, что может быть объяснено более интенсивными исследованиями и, отчасти, ростом численности карагуша.

*Gypaetus barbatus*. 5.05. бородач долго летал в ущелье р. Шураозень на хр. Кара-Тёбе, где несомненно гнездится 1 пара (Белик, 2008); 6.05. две молодые птицы наблюдались в ущелье к западу от с. Леваши; 7.05. два взрослых бородача встречены в ущелье р. Аварское Койсу у с. Хебда и Карадах. Обилие в горах, по неполной оценке, составило 3 пары на 506 км<sup>2</sup>.

*Neophron percnopterus*. В горах учтено 13 птиц, в том числе 3 – в высокогорье (р. Каракойсу и Аварское Койсу) и 10 – в предгорьях. При этом локализовано 6-7 гнездовых участков.

*Aegypius monachus*. Кочующий гриф встречен 4.05. над с. Терекли-Мектеб в Ногайских степях. В горах отмечено 10 встреч (18-20 птиц). Гнездятся они в сосновых лесах на гребнях хребтов преимущественно по р. Каракойсу и Аварское Койсу. В котловине Орота, как и в 2002 г. (Белик и др., 2002), держались как минимум 2 пары.

*Gyps fulvus*. 4.05. сип пролетел близ с. Терекли-Мектеб далеко на север в сторону Калмыкии. В горах учтено около 100 птиц, примерно в 5 раз больше, чем грифов. При этом локализовано 5 колоний (всего 40-50 пар): в верховьях р. Шураозень (5-10); по р. Каракойсу (6-8); р. Аварское Койсу у с. Голотль и Накитль (по 5-10); на р. Сулак ниже Чиркейской ГЭС

(не менее 15 пар). В целом количество учтенных птиц, как и на Центральном Кавказе (Белик и др., 2008), ориентировочно соответствовало числу гнездовых пар.

*Falco cherrug*. Специальные поиски птиц 5-6.05. у г. Буйнакск на гнездовом участке, указанном С.А. Букреевым с соавт. (2007), оказались безрезультатными, хотя условия там и на соседних хребтах вполне подходили для гнездования балобана.

*Falco peregrinus*. Не встречен, вероятно, из-за пропуска этих птиц, малозаметных на автомобильных маршрутах. При пешеходных же экскурсиях в горах на двух из трех стационаров в 2002 г. были выявлены 2 гнездовых участка (Белик и др., 2002).

*Falco subbuteo*. Первый чеглок отмечен 4.05. в дельте Терека. В горах встречены 2 одиночные птицы, в том числе 6.05. у старого вороньего гнезда в с. Параул. На обратном маршруте 8.05. учтено уже 8 птиц, в том числе 3 пары.

*Falco vespertinus*. В безлесных песчаных степях на севере Дагестана и в лесистой дельте Терека очень редок. В горах возможно пролетные 3 птицы встречены лишь 7.05. у г. Буйнакск. Но на юге Ногайских степей в лесополосах среди орошаемых "культурных" ландшафтов кобчик весьма многочислен. Между с. Кумли – Терекли-Мектеб – Боранчи 8.05. учтено 240 птиц на 58 км, что при трансекте 200 м шириной дает 20,7 ос./км<sup>2</sup>. Полнота учета составляла не более 50-60 %, т.е. реальное обилие кобчиков могло достигать 15-20 пар/км<sup>2</sup>., как и в Моздокских степях Северной Осетии (Комаров, 2010).

*Falco naumanni*. В безводных песках на севере Дагестана не встречена, но в большом числе обнаружена в "культурных" ландшафтах на юге Ногайских степей: в с. Терекли-Мектеб (20-50 пар), Калинин-аул (100-150 пар), Ленин-аул (около 100 пар), Боранчи (7 ос.), Карагас (3 ос.) а также в с. Абрам-Тюбе (3 ос.) и с. Зункарь (1 ос.) в Ставропольском крае. В с. Калинин-аул на одноэтажных жилых домах местами гнездились по 5-7 пар. На Терско-Сулакской низменности встречалась спорадично: на кошаре к востоку от с. Шамхал (20-30 пар), в с. Шамхал (4 ос.), близ с. Казмаул (30-50 пар), в с. Герменчик (8 ос.), с. Бабаюрт (6 ос.), г. Кизляр (1-2 ос.). Птицы гнездились, возможно, также в норах и нишах мощных глинистых обрывов по р. Шураозень ниже с. Шамхал. В предгорьях 40-50 пар держалось в с. Новый Кумух у г. Буйнакск, где эти птицы впервые были найдены нами в 2002 г. (Белик и др., 2002). Они наблюдались также в с. Параул (1 пара) и близ с. Акайталай (5 ос.). Во многих сёлах, где встречены птицы, учет не проводился, поэтому их численность могла быть значительно выше.

*Falco tinnunculus*. Изредка отмечалось по всему маршруту, но в песках была очень редка. Всего в Дагестане учтено 26 птиц, в том числе 9 – в Ногайских степях и 9 – в горах. Общая численность примерно на порядок ниже, чем у кобчика, хотя распространение значительно шире.

## **DISTRIBUTION AND HABITAT SELECTION OF SOME SPECIES OF BIRDS OF PREY AND OWLS IN JAVAKHETI**

Beruchashvili Giorgi

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According to all available data the 34 species of birds of prey and 6 species of owls were recorded in Javakheti. Distribution and habitat selection were studied for three breeding species of raptors - Western Marsh-Harrier (*Circus aeroginosus*), Montagu's Harrier (*Circus pygargus*), Common Kestrel (*Falco tinnunculus*) and one species of owl - Short-eared Owl (*Asio flammeus*). The presented data were collected in assistance with Alexander Abuladze during field works in 2008 - 2011. The general data on the dates of presence, territorial distribution, habitat selection and numbers for the each studied species are presented.

Western Marsh-Harrier (*Circus aeroginosus*). This species is the most widely distributed and numerous birds of prey within the limits of study area and successfully adapted to transformed habitats. Early dates of spring observations were in middle of March and late dates of autumn records were in the end of November. For nesting prefers wet areas around large lakes, marshes and along river banks. 4 nests and at least 21 occupied territories were found during study. All found nests are located on plots with large expanses of reeds. The density of breeding pairs was from 6 (in 2010) to 11 pairs (in 2008) per 100 sq. km of total area or up to 25 pairs per 100 sq. km of suitable breeding habitats. Probably 25 – 30 pairs are nesting The Marsh Harrier population in Javakheti seems to be fairly stable despite still existing human persecution.

Montagu's Harrier (*Circus pygargus*).

Most of records were between late March and middle of October. Prefers natural mountain steppes interspersed with cultivated fields and various wet habitats at the plots with low level of human activity. During our investigations 1 nest and 6 occupied territories were found within the altitudinal limits from 1700 to 1915 meters above sea level. The density of breeding pairs was not more than 4 per 100 sq.km of total area. In our opinion not more than 10 pairs may breed in Javakheti at present.

Common Kestrel (*Falco tinnunculus*)

In 2008-2011 seven nests and ten occupied territories were found within the altitudinal limits from 1700 to 2070 meters above sea level. The density of breeding pairs was 5 - 9 pairs per 100 sq. km of total area. Preferred open landscapes with cliffs, canyons, ravines, cultivated fields, areas with ruins and solitary buildings, also found in small settlements. Nests of two types were found in Javakheti – one in old nests of *Corvids* on trees (about 3/4) and another in ruins (about 1/4). The present local breeding population may total to 25 – 30 breeding pairs.

Short-eared Owl (*Asio flammeus*)

Based on the several observations of pairs and solitary individuals during breeding seasons in 2008-2011 along shores of Madatapa, Bugdasheni, Khanchali and Kartsakhi lakes and at alpine wetlands, bordered with pastures and cultivated fields (in surroundings of Eshtia and Sulda villages), this species may be classified as a widespread, but rare summer breeder and passage migrant to Javakheti. According to report of local inhabitant, female with a juvenile were seen near bank of Akhmaz Lake several years ago. Most of our records were at shores of large lakes and marshes surrounded by artificial pine forests and wet meadows. According to our estimations, present numbers within the limits of study area consist 5-8 pairs, probably a little more. Density of breeding pairs in suitable habitats ranged from 3 to 5 pairs per 100 sq. km.

## **Investigation on Population Biology and Implication for Conservation of Eurasian Black Vulture in Middle Sakarya Region, Turkey**

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Regional conservation investigation have featured prominently for many end angered birds of prey, such as Eurasian Black Vulture (*Aegypius monachus*).

Although Eurasian Black Vulture populations are increasing in Spain, Portugal and France, they considered as critically endangered (CR) in Turkey, and also less information is available regarding the status and population trends of the species. The primary goal of this study is to get information about the population of Eurasian Black Vulture in Middle Sakarya Region situated between Ankara and Eskişehir and contribute to conservation of the species. It was identified individual nests it is in the Middle Sakarya Region and monitored breeding success throughout 2010-2011 by systematic searches and observations. During two years it was recorded totally 109 nests. The number of breeding pairs for they ears 2010-2011 ranged from 32-46. Breeding success (nests, where young fledged/occupied nests) was %78,1, and %73,9 for the two consecutive years, respectively.

It was found that forestry and recreational activities are the main limiting factors of the colony in the study area. Because of the low breeding success, threat sand limiting factors are considered as critical level in the Middle Sakarya Region.

## **The Programs of Color Ringing and Wing Tagging of the Greater Spotted Eagle (*Aquila clanga*) in Belarus**

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There are more than 100 pairs of Greater Spotted Eagle (GSE) nesting in Belarus. It is the largest breeding group of the species in the western part of the breeding range, which defines status of the species in the whole region. The least studied issues of the biology of the species in Belarus are migration routes and wintering sites. In 2007 Belarus has joined the Spotted Eagles Colour Ringing Programme (SECR). This programme was initiated after several international meetings of the group “3B+B” (three Baltic states and Belarus). Financial support for purchase of the rings was provided by the EAGLELIFE project of Estonian Ornithological Society.

Dark-blue colour was selected for rings used in Belarus. Research and ringing of juveniles are going mostly in Palesie region (Southern Belarus). In period 2007–2011 53 GSEs juveniles and 10 LSE×GSE hybrids were ringed. The first colour ringed GSE was spotted on November 23, 2007 in Northern Israel (North of Haifa, towards Acre). The eagle was suspected to be poisoned and was treated in the Israeli Wildlife Medical Centre. This bird was ringed in a nest near Belaaziorsk (Biaroza District, Brest Region, South-Western Belarus) on July 28, 2007 as a 50-day old chick. The second colour ringed eagle was observed in the Central Poland (Bzura valley) during August 4–16, 2010. This GSE was ringed in a nest in the Zvanets IBA (Drahichyn district, Brest region, South-Western Belarus) on July 10, 2009 as a 50-day old chick.

In 2010, in cooperation with the Iberian Centre for Bird Study (Spain) another program of eagle marking has started in Belarus using green colour wing tags with two white characters on the top and on the bottom of a tag: one letter and one digit. In 2010–2011 19 young GSEs have been tagged. The first wing tagged GSE was observed on October 1, 2010 in Northern Israel near Tel-Aviv. This bird was ringed in a nest in the Pripyatski national park (Zhytkavichy district, Homel region, Southern Belarus) on July 27, 2010 as a 50-day old chick.

So far we have received returns from the 3% of colour ringed and 5% of wing tagged birds. During fall migration Belarusian GSEs (two birds) were observed only in Israel.

## **BIRDS OF PREY AND OWLS OF THE SHIDA KARTLI REGION, GEORGIA**

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Materials on the species diversity, status of presence and numbers of the birds of prey and owls occurred in the Shida Kartli Region of Georgia were collected in 1979 – 2011. 32 raptor species and 8 owl species were recorded within the limits of study area.

Bearded Vulture (*Gypaetus barbatus*) – year-round resident. Nesting of 1 pair was known at the southern macro-slope of Roki Pass near southern portal of Roki funnel. Probably other 1 or 2 breeding pairs are in the sources of Didi Liakhvi River.

Egyptian Vulture (*Neophron percnopterus*) – migratory breeder. In 1970's–80's breeding of 7 – 11 pairs was confirmed in region. 3 nests were found during last years.

Eurasian Griffon (*Gyps fulvus*) – former breeder. Colony was found in the Mtkvari River valley at rocks near Shio Mghvime monastery (Bankovski, 1913). Vagrant at present.

Cinereous Vulture (*Aegypius monachus*) - rare year-round nomadic visitor without breeding.

Osprey (*Pandion haliaetus*) – very rare passage migrant, only solitary individuals were recorded several times during study period.

Short-toed Snake Eagle (*Circaetus gallicus*) – rare migratory breeder and passage migrant. Number of breeding pairs increased from 1–2 in 1980's to 3–5 pairs at present.

Booted Eagle (*Hieraaetus pennatus*) – rare migratory breeder (not more than 10 pairs) and more-or-less common passage migrant in study area.

Bonelli's Eagle (*Hieraaetus fasciatus*) – irregular (occasional) breeder. Occupied nests were recorded in 1984 and 1995 (Abuladze, 2008). Besides that several times solitary birds and pairs were watched in area, last observations were on 5<sup>th</sup> and 7<sup>th</sup> May and in June-July 2005.

Golden Eagle (*Aquila chrysaetos*) – rare year-round resident; 3-5 pairs.

Imperial Eagle (*Aquila heliaca*) – rare breeder (1-2 pairs at present) but number of migrating individuals increased during last years.

Steppe Eagle (*Aquila nipalensis orientalis*) – passage migrant, more common in autumn; usually recorded by solitary individuals or small flocks in open areas of Shida Kartli.

Greater Spotted Eagle (*Aquila clanga*) – very rare passage visitor in small numbers.

Lesser Spotted Eagle (*Aquila pomarina*) – rare migratory breeder (1-3 pairs at present) and widespread and uncommon passage migrant across study area.

Black Kite (*Milvus migrans*) – widespread and common passage migrant, more often watched by flocks of 20-100 birds, rarely by solitary individuals or by large flocks (100-500 individuals).

Marsh Harrier (*Circus aeruginosus*) – probably rare breeder. Common passage migrant and rare winter visitor in small numbers.

Hen Harrier (*Circus cyaneus*) – rare passage migrant; usually recorded by single individuals.

Pallid Harrier (*Circus macrourus*) – the most rare species among all harries, recorded by solitary individuals during seasonal migrations.

Montagu's Harrier (*Circus pigargus*) - rare in small numbers passage migrant.

Rough-legged Buzzard (*Buteo lagopus*) – common but irregular winter visitor to study area.

Long-legged Buzzard (*Buteo rufinus*) – rare breeder (3–5 pairs); rare passage migrant and rare irregular winter visitor.

Common Buzzard (*Buteo buteo*) – widespread and common migratory breeder (60–80 pairs), but numbers decreased in some parts of study area due of cutting of old trees in flood-plains and destruction of artificial tree-lines (Kartli Plain). Widespread and very common passage migrant; rare in small numbers winterer.

European Honey-buzzard (*Pernis apivorus*) – rare migratory breeder (only solitary pairs) but local population slowly increased during last decade; widespread and very common migrant.

Northern Goshawk (*Accipiter gentilis*) – widespread but rare to uncommon (20–25 pairs) year-round resident, passage migrant and winterer.

Eurasian Sparrowhawk (*Accipiter nisus*) – common breeder (50+ pairs at present) in various forests. Widespread and common passage migrant and winter visitor. In some winters number greatly increased. Wintering birds often recorded in towns and villages.

Levant Sparrowhawk (*Accipiter brevipes*) - extirpated as a regular breeding species in the 1950's-1960's. In 1990's again became to nest in region. Common passage migrant in various habitats including urban areas (Gori town). From 2005 found on nesting near Nadarbazevi lake.

Lesser Kestrel (*Falco naumanni*) – extirpated as regular migratory breeding species in 1980's. Small colony was known in eastern part of Kvernaki Ridge. Rare passage visitor at present.

Common Kestrel (*Falco tinnunculus*) - widespread and common resident (or partially migratory breeder) and passage migrant. The present breeding population may total to 40-50 pairs with slow decrease. Solitary individuals were recorded in some mild winters.

Red-footed Falcon (*Falco vespertinus*) – passage migrant and occasional winterer, solitary individuals several times were observed in mild winters.

Eurasian Hobby (*Falco subbuteo*) – widespread and more-or-less common migratory breeder (15-20 pairs) and passage visitor across study area.

Merlin (*Falco columbarius*) – rare passage and winter visitor.

Peregrine Falcon (*Falco peregrinus*) – formerly widespread year-round resident, but extinct in the middle of 20<sup>th</sup> century due of using of pesticides. In the end of 20<sup>th</sup> century again became to nest in mountain parts of region. During last years several times were watched in environs of Gori and in central parts of town.

Saker Falcon (*Falco cherrug*) – rare passage migrant and probably irregular winterer in small numbers.

Common Scops Owl (*Otus scops*) – common migratory breeder with high density in suitable habitats. Nesting of 7-9 pairs was known in Park of town of Gori (6 hectares), located at banks of Liakhvi and Mtkvari rivers, but after cutting of old trees nesting of 3 pairs was recorded here.

Eurasian Eagle Owl (*Bubo bubo*) – widespread but rare year-round resident. At least 3 pairs are nested at Kvernaki Ridge. Nest near Uplistsikhe rocks is occupied during last several decades.

Snowy Owl (*Nyctea scandiaca*) – vagrant, single birds 3 times were recorded during our study.

Little Owl (*Athene noctua*) – widespread but not numerous; no data on numbers.

Tawny Owl (*Strix aluco*) – widespread and common year-round resident in forests of study area with a density 4 - 18 pairs per 100 sq.km.

Long-eared Owl (*Asio otus*) – widespread and common year-round resident, passage migrant and winter visitor with a great fluctuations by years and seasons (Abuladze, Edisherashvili, 1985).

Short-eared Owl (*Asio flammeus*) – status unclear, in our opinion - passage migrant and winterer.

Boreal Owl (*Aegolius funereus*) – rare year-round resident, during breeding seasons were founded in Didi Liakhvi River valley and in Atheni gorge.

## **Where do Vultures Fly from Their Natal Areas in the Caucasus? Results of 10-Year-Long Radio-Satellite Tracking**

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სად მიფრინავენ მძორიჭამია ფრინველები მათი წარმოშობის ადგილებიდან კავკასიაში?  
10 წლოვანი რადიო-სატელიტური კვლევის შედეგები

**Aim:** To (a) study local and long-range movements of Bearded Vulture (*Gypaetus barbatus*), Griffon Vulture (*Gyps fulvus*) and Cinereous Vulture (*Aegypius monachus*).

**Location:** The Caucasus, Middle East.

**Methods:** We used location data from the vultures fitted with satellite-received transmitters to obtain distribution patterns.

**Results:** Territorial female Bearded Vulture remained within 10 km of her nest for two years. During this time period she fledged two chicks. Young Cinereous and Griffon Vultures may migrate from the Caucasus as far south as the Arabian Peninsula and Persian Gulf. Their movements are concentrated in sparsely vegetated areas, grasslands, and shrub lands.

**Main conclusions:** Our study shows the importance of the Arabian Peninsula and Iran as wintering areas for Cinereous and Griffon Vultures breeding in the Caucasus.

### Сравнение летнего комплекса орнитофауны горной степи Талыша

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Наша экскурсия совершенная в начале июня 2010 года охватила территорию нескольких сел Зуванда (Лелекаран, Ховейри, Дивагач), которая в основном была направлена на исследование герпетофауны горной степи. Но по ходу мы также отметили виды птиц встречающихся как в природных комплексах, вдоль дороги Лерик -Зуванд, также вокруг деревни Лелекаран. Суровая зима и сравнительно сухие дни весны заметно сказались на продуктивности фруктовых деревьев, что следовательно повлияло на численность птиц. К нашему удивлению плотность даже домового воробья оказалась невысокой. Наиболее высокая численность у обыкновенного скворца, в стае по 20-25 птиц. Регулярно встречающиеся виды вокруг населенных участков составляет 5 видов: угод, серая ворона, сорока, обыкновенная горихвостка и щегол. Утренняя и вечерняя активность отчетливо было замечено у горихвостки и щегла, что свидетельствовало о гнездовании видов по близости. Золотистая щурка хоть и не многочисленна, но повсеместно вдоль дороги отмечалась, а в деревни их было слышно чаще в утреннее время. В садовой участке дома черноголовая овсянка была регулярным видом. На скале кеклик, на кустах сорокопут –жулан, на открытых участках камешки.

По данным Агаевой Ч.А. (1979) в нагорной степи Талыша гнездятся и зимуют 130 видов птиц, из них в природном комплексе встречается 74 вида, а в антропогенном -104, где основное ядро орнитофауны составляли оседлые и перелетно-гнездящиеся виды. Так, число оседлых видов в природном комплексе превышало видов антропогенного комплекса (соответственно 21 и 17), хотя количество только гнездящихся видов в природном комплексе отстает перед антропогенным комплексом (соответственно 26 и 38). Как отметила автор в



селениях с прилежащими древесными посадками в виде садов, виноградников, изгородей и т.д. плотность птиц в летнее время в 3 раза выше, чем в открытых ландшафтах нагорной степи Талыша. Она составляло  $1269 \text{ ос/км}^2$  при биомассе  $36,58 \text{ кг/км}^2$ . Хотя и мы не имеем возможность сравнить эти данные с настоящим моментом из-за отсутствия материалов по изучению биомассы, но перечень доминирующих видов отмеченных автором для 70-ых годов указывает на небольшое изменение современного статуса птиц по плотности. Те исследования (1968-1973) выявили, что доминировали по численности 4 вида – домовый воробей, щегол, просянка, зяблик который мы не можем подтвердить полностью. Вблизи антропогенного комплекса мы не отметили просянку вообще, а количество домового воробья уступает скворцу.

## **THE PROTOCOL FOR LONG-TERM RAPTOR MIGRATION MONITORING ALONG EASTERN BLACK SEA FLYWAY IN BATUMI, GEORGIA**

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The migration bottleneck in Batumi along the Eastern Black Sea coast is a key component in the flyways of many of the Eurasian migratory raptor species. Taking into account the difficulty to conduct large-scale monitoring on these species' breeding grounds, the bottle-neck provides a unique opportunity to detect trends in raptor populations originating from the huge landmass of East-Europe and West Siberia.

For several complete long-distance migratory raptors the Batumi Raptor Count covers a highly significant portion of the migrants expected from presumed source areas in north-eastern Europe, the western Caucasus and western Russia: Eurasian Honey-buzzard, Black Kite, Lesser Spotted Eagle and Booted Eagle. Especially remarkable are the counts for Black Kite and Marsh, Montagu's and Pallid Harrier. They are the highest total counts for these species ever registered during a single migration season. Observed migrants also included a number of internationally threatened migrants.

In contrast to monitoring schemes at other bottlenecks, the BRC explicitly chooses to monitor only a selection of species. In this way we aim to increase the quality of data obtained through ground-based counts, to reduce the necessary count effort and to make it more realistic that the monitoring will be continued in the future.

A first step in the selection of priority species for monitoring was based on the proportion of their estimated world populations (BirdLife 2010) that migrates through the Batumi bottleneck, using a threshold of 1%.

In a second step, we aimed to maximize the efficiency of count effort. Several considerations led to the exclusion of species from the list. First of all, we assessed the difficulty of collecting high-quality data for each species. A second consideration was that late species would be harder to

monitor, because it has proven extremely difficult to find sufficient volunteers/observers after mid-October.

In this way we selected seven key species, which will determine the design of the Batumi monitoring scheme. In practice this means that BRC ensures the necessary count effort to monitor these species on a yearly basis, i.e.: sufficient observers for a predefined duration of the season with daily counts. Start and end dates for counts for each of these species are based on data collected during the 2008 and 2009 surveys.

Besides these 7 species, a number of secondary species are registered. These include large eagles *Aquila* species other than Lesser Spotted Eagle – *Aquila pomarina*. This is because counting *Aquila pomarina* logically implies that the similar looking *Aquila nipalensis* and *Aquila clanga* need to be excluded during identification, which in turn constitutes most of the work for counting these species.

With this protocol we strive to obtain useful information on primary species populations, as a primary warning system for population declines, breeding success or shifting migration or wintering strategies.

## **Conservation of Imperial Eagle in Eastern Georgia**

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During the last decade in Georgia, Imperial Eagle populations have dramatically declined (from 53 pairs in 1991 to 10-15 pairs in 2003). Decline is caused mainly by the influence of anthropogenic factors (disturbance, habitat destruction, persecution etc.). Negligence from local communities and other key stakeholders towards the problem is caused by lack of knowledge and awareness.

We conducted field research to identify unknown nests and to map them together with known nests. We monitored those nests and identified most vulnerable ones by analyzing data about breeding success, threat severity and nest conditions.

We used "Targeting behavior" method of participatory approach developed by Conservation International to influence behavior of the local communities leading to disturbance of breeding Imperial eagle and low breeding success.

We worked 3 different communities influencing 3 different nest sites of Imperial Eagle. In two occasions disturbance was linked with sheep and cattle herding behaviors and one was linked with hunting management practices in hunting reserve, in all cases those practices were causing disturbance of the birds during breeding season. After conducted work with those communities in

all three occasions bird disturbing behavior was changed by more friendly behavior that avoided further disturbance of Imperial Eagle during breeding season.

### **Vulture species of Khosrov reserve**

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Khosrov State Reserve stretches along the south-western ridges of Geghama Mountains. The Reserve has a very complex geo-morphological relief and severe topography. Its territory is mountainous throughout densely interspersed with canyons and lateral gorges mixed with high-lying plateau and structural basins which give way to the high rising mountain ranges and solitary peaks.

Owing to the great vertical elevation ranges from 850 to 2,800 m a.s.l., the area of Khosrov practically embraces all landscape zones known to occur in Armenia.

Patches of semidesert, mountain steppe, alpine and forested areas appearing in both mixed and juniper open woodlands and numerous rocky formations create necessary conditions for viability of many raptor bird species in the area. In 38 species of birds of prey documented in Armenia, 22 nest in the reserve. Of those, 13 species are listed in the Armenian Red Data Book; two species – Cinereous and Egyptian Vultures – are included in the IUCN Red List. Apart from the breeding species, during the migration and wintering seasons, the reserve provides refuge to 9 more species which either winter visitors or late migrants.

Rocky formation and multiple outcrops in forested areas and mountain steppe, tall juniper trees and occurrence of most vertebrate species serving as food for many birds of prey, render this reserve an attractive place for all four species of scavengers occurring in Armenia. Other than natural enemies encountered on the territory of the reserve, abundant flocks of cattle and sheep can be seen grazing along the entire perimeter of the reserve. In late fall and winter as well as early spring, they are kept in the vicinities of the reserve, at its lower altitudes, while during the summer and early fall months they are herded up to the alpine pastures.

A large number of niches in cliffs suitable for nest construction are occupied by Lammergeier, Egyptian and Griffon Vultures. Cinereous Vulture, the breeding population of which has remained only on the territory of the reserve, builds nests on canopies of strong juniper trees growing in hillsides and occasionally in tall pear trees.

Monitoring of vulture nests gives a certain picture about their numbers in the reserve. The decline in the number of breeding pairs of Griffon and Egyptian Vultures does not imply a decline in its population number. It may be linked to the alienation of ca. 6,000 ha of land from the territory of the reserve where these species used to nest.

Species	2002	2002	2010	2010
	Refurb/occ.*	Inc/chicks fledged**	Refurb/occ.*	Inc/chicks fledged**
Lammergeier	3/3	3/2	2/2	2/1
Egyptian vulture	4/4	4/5	3/3	3/3
Griffon vulture	19/16	16/14	10/9	9/7
Cinereous vulture	5/4	4/3	11/9	9/8

\*nest refurbishment /egg laying

\*\*incubation /fledgling

<p align="center"><b>Гибель хищных птиц на линиях электропередач южного Дагестана, оценка ущерба и пути его предотвращения.</b></p>	<p align="center"><b>Death of Birds of Prey on Power Lines in Southern Dagestan, Assessment of Damage and Ways to Prevent It.</b></p>
<p align="center"><b>В.Н. Мельников<sup>1</sup>, А.М. Гаджиев<sup>2</sup></b></p> <p align="center"><sup>1</sup> <i>Ивановский государственный университет</i></p> <p align="center"><i>E-mail: ivanovobirds@mail.ru</i></p> <p align="center"><sup>2</sup> <i>Ивановский государственный университет</i></p> <p align="center"><i>E-mail:amin1@mail.ru</i></p>	<p align="center"><b>V.N. Melnikov<sup>1</sup>, A.M.Gadzhiev<sup>2</sup></b></p> <p align="center"><sup>1</sup> <i>Ivanovo State University</i></p> <p align="center"><i>E-mail: ivanovobirds@mail.ru</i></p> <p align="center"><sup>2</sup> <i>Ivanovo State University</i></p> <p align="center"><i>E-mail:amin1@mail.ru</i></p>
<p>Природный мир республики Дагестан отличается уникальным видовым богатством. Из почти 400 видов птиц, обитающих здесь, 56 видов включены в Красную книгу Дагестана[1]. Одной из серьезных угроз, вызывающих сокращение популяций птиц, особенно, редких и крупных видов являются воздушные линии электропередач (ЛЭП), с железобетонными опорами мощностью 6-10 кВ[2]. Причина этого в том, что в степных и полупустынных районах Дагестана в условиях дефицита древесно-кустарниковых насаждений ЛЭП зачастую являются единственным местом для присад и не оборудованы птицезащитными сооружениями (ПЗУ).</p> <p>Наши исследования проводились в период с 2008 по 2011 гг. на юге республики Дагестан в таких географических районах как приморские и низменные участки Самурского заказника и Дербентского района, а также предгорные и</p>	<p>The wildlife of Daghestan Republic is characterized by unique species richness. Of nearly 400 species of birds inhabited the republic, 56 species are included in the Red Data Book of Daghestan [1]. One of serious threats causing the decline of bird populations, especially rare and large species, are overhead power lines of medium voltage (6-10 kV), supported by reinforced concrete poles. The shortage of trees and bushes in steppe and semi-desert regions of Daghestan often makes birds to choose the power lines as the only possible place for perches, and unfortunately none of them are equipped with bird protection constructions.</p> <p>Our studies have been conducted over the period 2008-2011 in the south of Daghestan Republic. Geographical territories of the survey include coastal and lowland areas of Samurski Zakaznik and Derbent district, as well as the foothills and</p>

<p>горные участки Табасаранского района и участок Сарыкум природного заповедника "Дагестанский".</p> <p>В Самурском заказнике гибели хищных птиц на ЛЭП отмечено не было. ЛЭП Табасаранского района представлены деревянными опорами и также не несут угрозы для птиц.</p> <p>Опасным участком оказалась территория на границе Дербентского и Табасаранского района. Здесь на 1,5 км участке, из 10 птиц, погибших на ЛЭП, 9 – хищные.</p> <p>Из двух обследованных типов ЛЭП Дербентского района высокое число случаев гибели хищных птиц также обнаружено на ЛЭП с ж/б опорами 6-10 кВ. С 2008 по 2011гг. здесь было найдено достаточно большое количество хищных птиц. За два месяца осенней миграции птиц (сентябрь-октябрь 2010) здесь обнаружено 25 особей хищных птиц, пораженных на ЛЭП (в основном, обыкновенный канюк).</p> <p>В заказнике Сарыкум заповедника "Дагестанский" на птицепасных ЛЭП за два месяца наблюдений (август-сентябрь 2011 года) обнаружено 15 хищных птиц из них 9 - степные пустельги, очень редкий краснокнижный вид.</p> <p>Хотя наши исследования требуют продолжения регулярных наблюдений, но собранные данные уже сейчас позволяют утверждать, что наиболее птицепасными в Дагестане являются ЛЭП 6-10 кВ с ж/б опорами, требующие установки ПЗУ. Только в Дербентском районе, ущерб, нанесенный природной среде, за 2 месяца составил 1 млн 654 тыс рублей. Для сравнения, стоимость птицевозащитных конструкций типа «ПЗУ - 6-10 кВ» для оборудования данного участка составляет 31500 рублей, что позволит сделать этот участок безопасным для птиц на протяжении многих лет.</p> <ol style="list-style-type: none"> <li>1. Букреев С.А., Джамирзоев Г.С. Ключевые орнитологические территории России, изд. М. 2009.</li> <li>2. Салтыков А.В. Оценка ущерба, причиняемого при гибели птиц на ВЛ 6-10 кВ в Ульяновской области // Тезисы</li> </ol>	<p>mountainous areas of Tabasaranski district and the section 'Barchan Sarykum' of the Daghestan Nature Reserve.</p> <p>In Samurski Zakaznik the death of birds of prey on power lines was not recorded. Power lines of Tabasaranski district are supported with wooden poles and are also safe for birds.</p> <p>A dangerous plot was the territory on the border of Derbent and Tabasaranski districts. There, on 1,5 km section of power lines, out of 10 bird's deaths on power lines 9 were birds of prey.</p> <p>Of the two surveyed types of transmission power lines in Derbent district high number of deaths of birds of prey were also found on power lines of medium voltage (6-10 kV), supported by reinforced concrete poles. From 2008 to 2011 in this district there were discovered a high number of birds of prey. During two months of bird autumn migration (September-October 2010) 25 electrocuted individuals of birds of prey were found (mostly, the Common Buzzard).</p> <p>In the section 'Barchan Sarykum' of the Daghestan Nature Reserve on dangerous for birds power lines two months of observations (August-September 2011) revealed 15 birds of prey, of them 9 are the Lesser Kestrels - a globally endangered species listed in the Red Data Book of Russia and the IUCN Red List.</p> <p>Although our studies need further regular observations, already at the present moment the collected data testify that the most dangerous for birds in Daghestan are power lines of medium voltage (6-10 kV) supported by reinforced concrete poles, which require the installation of bird protection constructions. Only in Derbent district, damage to the environment for 2 months amounted to 1 million 654 thousand roubles. For comparison, the cost of bird protection constructions to install in this area is 31,500 roubles, which would make the district safer for birds for many years.</p> <ol style="list-style-type: none"> <li>1. Bukreev, S.A. Dzhamirzoev, G.S. Important Bird Areas of Russia. Published: Moscow. 2009 [in Russian]</li> <li>2. Saltykov, A.V. Assessment of damage because of bird deaths on 6-10 kV power lines in Ulyanovsk region//Abstracts of</li> </ol>
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## Migration of Soaring Birds Over Bulgaria

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The territory of Bulgaria takes important biogeographic position in Balkan Peninsula, European continent and West Palearctic. It plays also significant role for bird migration from eastern part of Europe to the wintering places in Africa.

Many papers contain data about soaring bird migration over Bulgaria (Patev, 1950; Kumerloeve, 1956; Balat, 1962; Georgiev, 1976, Roberts, 1978, 1979; Robel et al, 1978; Donchev, 1980, 1984; Simeonov et al, 1990. Most comprehensive of them is the article of Michev et al. (2011), who have studied the autumn migration of soaring birds at the western Black Sea migration route (Via Pontica) for a long-term period (between 1979 and 2003).

Despite of many papers in this field some aspects of soaring birds migration through Bulgaria are not clear yet. Migration routes, numbers and its dynamic of different migrant species, peak days and s.o. remain still without answer.

On the other hand the enormous development of wind farm construction during last years requires exact data about parameters of bird migration for many parts of the country and a round year monitoring. So in last time a great amount of data were collected predominantly for northeastern regions of Bulgaria. A part of all these monitoring data are included in the present report.

The report contains data on total numbers of 35 species of raptors and 5 species of soaring water birds about more than 25 places in different parts of the country which have been collected during the last years.

The collected data show and prove for the first time that with exception of Via Pontica the migration of soaring birds over Bulgaria is insignificant.

Thanks to the Ecotan LTD, Chuhal LTD and Institute of Biodiversity and Ecological Researches at Bulgarian Academy of Sciences, who kindly supplied their monitoring data.

Данните за настоящия доклад са въз основа на визуални наблюдения от хх места по територията на България в продължение на 817 дни през пролетта и 975 дни през есента. Общият брой на дните с визуални наблюдения е 1792 през периода 2005 – 2011 г.

През пролетта при Драгоман, Златията, Кам. Поле и Гулянци доминират реещите се грабливи, на изток от тях -реещите водолюбиви

През есента при Драгоман, Кам. Поле, Гулянци и Щит доминират реещите се грабливи, на изток от тях -реещите водолюбиви



При реешите се грабливи птици РГ числеността през пролетта е по-голяма от есенната при Драгоман, Златията, Бяла, Раково и Щит

При реешите се водолюбиви птици РВ числеността през пролетта е по-голяма от есенната при Драгоман, Кам. Поле, Бяла, Раково, Щит, Габрица и Дрянковец

## **Materials to the Study of Parasitofauna of Birds of Prey and Owls of Georgia**

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The studies on the parasitofauna of birds of prey and owls of Georgia were not performed after the 50-70<sup>th</sup> of the XX century. Materials are published regarding the researches only on the blood parasites and helminthes of these birds. Blood parasites are studied in seven species of birds of prey and in one species of owls (Burtikashvili L., 1978). In birds of prey avian haemosporidian species of *Haemoproteus* and *Leucocytozon*, as well as *Microfilaria* are found. As the dominant blood parasite for both groups of birds *Haemoproteus* is registered.

The Helminthofauna of birds of prey is better studied (Kurashvili B.E., 1957). 145 individuals of 13 species are investigated, 72,4% of which appeared invaded by 25 species of Helminthes, including: *Trematoda* – 3 species (40,6%), *Cestoda* – 1 species (12,4%), *Nematoda* – 16 species (67,5%), *Acanthocephala* – 3 species (31,0%). 81 individuals of 5 species of owls are investigated. 55,5% appeared invaded by 6 species of Helminthes, including: *Cestoda* – 1 species (18,5%), *Nematoda* – 4 species (43,2%), *Acanthocephala* – 1 species (6,1%). In owls no *Trematoda* were found.

Herewith we can conclude that in birds of prey high level of Helminthes invasions are registered. Nematodae Helminthes predominate in both groups of birds. Four species of nematodes and one species of Acanthocephala are common for both groups of birds.

## **Population Size, Breeding Success and Diet Composition of Eastern Imperial Eagles in North-Western Azerbaijan**

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In 2007 and 2008 Azerbaijan Ornithological Society (AOS) and MME BirdLife Hungary executed two specific surveys in order to estimate Eastern imperial eagle (*Aquila heliaca*) populations in Azerbaijan. We have visited a 6000 sq km area in North-western Azerbaijan, where AOS had information on six imperial eagle territories prior to the survey.

In April 2007 we have executed a 9 days field survey in order to locate new nesting sites. During this short survey we have managed to find 25 active nest sites where eagles were incubating, two nests where eagles did not start the incubation yet, and further three active territories where the nest

was not found. In July 2008 we controlled 25 of the known nesting sites, in order to determine breeding success and diet of the eagle pairs. We could determine the breeding success in 18 territories, while the active nests were not found in the remaining eight territories, which were checked. Fourteen nests (78%) were successful, and they contained 24 fledglings, which resulted an average breeding success of 1.33 chicks/nesting pairs and 1.71 chicks/successful pairs.

All together 140 prey items could be collected and identified under the nests. The main prey species was the European legless lizard (*Ophisaurus apodus*), which composed 25% of all prey items. Among the other 29 prey species identified hedgehogs (*Erinaceus* sp., 14%), brown hares (*Lepus europaeus*, 9%), feral pigeons (*Columba livia* f. *domestica*, 9%) and chicken (*Gallus domestica*, 8%) composed significant proportions.

Most of the nests were situated in poplar trees, but three of them were in other tree species, and four of them were on high-voltage electric pylons. Breeding pairs were composed exclusively by adult birds and the distribution pattern of nests showed a stable territory system, since neighbouring pairs were 6 km to each other in average. These data suggest that the population possibly had no significant trend (nor positive or negative) in the recent past. Following our first surveys in the next year AOS found further 18 breeding pairs in another region of West-Azerbaijan (Sultanov et al.), so we believe that the country holds a significant population of this globally threatened raptor, which is mostly still unknown for the national and international conservation organizations.

## **REVIEW OF THE MAIN BOOKS ON RAPTORS IN NORTHERN EURASIA DURING 1977-2011**

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Raptor biologists of Northern Eurasia at the present time are working on the volume in the series “Birds of Russia and adjacent countries (within the border of the ex-USSR)” on the volume dedicated to the birds of prey. This volume will be published in Russian only and therefore it is worth to describe briefly the main publications on raptors in the Northern Eurasia for the last 34 years mainly in Russian. Materials of all 5 conferences on raptors of N.E. are published, excepting the 2<sup>nd</sup> conference in Kiev in February 1988 with 220 communications of 200 participants: the first (Moscow, February 1983) in two parts (Ecology of Birds of Prey with 88 articles and Conservation of Birds of Prey with 65 articles); the 3<sup>rd</sup> in Kislovodsk in 1998 with 153 communications; the 4<sup>th</sup> in Penza in 2003 with 114 communications and the 5<sup>th</sup> in Ivanovo in February 2008. For the 4<sup>th</sup> Conference the special collection of papers was published on the status and distribution of the Goshawk with 28 articles and for the 5<sup>th</sup> conference – collection of 31 papers “Research and Conservation of the Greater Spotted and Lesser Spotted Eagles in Northern Eurasia” (Ivanovo, 2008). The Central Laboratory of Hunting Industry and Nature Reserves in Moscow published a collection of 19 articles “Birds of Prey and Owls in Nature Reserves of the RSFSR” in 1985 on 178 p. and a collection of 35 papers “Methods of Study and Conservation of Birds of Prey (Methodical Recommendations)” in 1989 on 319 p. The Russian Bird Conservation Union published in 1999 in Moscow the review “Imperial Eagle of the European Russia”. V.VRyabtsev wrote the small book “Eagles of the Lake Baikal” mainly dedicated to the conservation of the Imperial Eagle in Asiatic

part of range available from the Internet. A lot of useful information is contained in the book on raptors of front-Uralia by A.I.Shepel “ Birds of Prey and Owls of Perm Kama River Area” published by Irkutsk Univ. Press in 1992 (296 p.). N.N.Berezovikov has written a short monograph on the Golden Eagle in Alma-Ata in 1986, E.A.Bragin a small book on eagles in Alma-Ata in 1987, V.M.Galushin “Birds of prey of forest” in Moscow in 1980. A collection of 12 articles “Birds of Prey and Owls of the Northern Caucasia” (Proc. of Teberda State Nat. Res. Nr14 ) was published in Stavropol in 1995 on 200 p. Owls are reflected in a good review by the late Yu.B.Pukinskiy “Life of Owls”, published by Leningrad State Univ. Press in 1977 on 240 p. The part of owls species is described in the volume “Birds of Russia and Adjacent Regions: Pteroclitiformes, Columbiformes, Cuculiformes, Strigiformes” by “Nauka” Press in Moscow in 1993. The Eagle Owl was well described in review with 22 articles “Eagle Owl in Russia, Belarus and Ukraine”, published by Moscow Univ. Press in 1994 on 154 p. Two good collection of papers on owls are published in Moscow in 2005 “Owls of the Northern Eurasia” (Edited by S.V.Volkov, V.V.Morozov and A.V.Sharikov) with 69 articles on 471 p.. and in 2009 “Owls of the Northern Eurasia: ecology, spatial and habitat distribution” (the same co-editors) with 45 articles on 310 p. “Goldmine” of information on raptors of Ukraine is the book by the late V.M.Zubarovskiy “Fauna of Ukraine. Birds. Birds of Prey” (Kiev, Naukova dumka, 1977) printed in Ukrainian. In 2008 the collection of 72 articles “Modern Study of Birds of Prey and Owls” was published in Kriviy Rig (420 p.) in Russian and Ukrainian. Book by Khokhlov, A.N. and Ilyukh, M.P. ”The Birds of prey and owls of the transformed ecosystems of Front-Caucasia” includes a lot of detailed information on 760 p., published in Stavropol in 2010. Migrations of raptors are analysed in the volume “Birds migrations of East Europe and Northern Asia: Falconiformes-Gruiformes) printed in Moscow in 1982 on 288 p. Some other books are discussed. This list covers only the main items.

## **WHAT DO WE KNOW ON FALCONRY HISTORY IN THE MODERN TRANSCAUCASUS?**

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The Trans-Caucasian countries have an ancient culture and therefore exceptional rich heritage including hunting heritage. We know something on the falconry history in Georgia (Robakidze, 1949; Abuladze, 1989; Chogovadze, 2001), while our knowledge in Armenia and Azerbaijan is very limited. In Front-Caucasia we have several works by Dr.A.I.Drup. In 2005 the Falconry Heritage Trust ([www.falconryheritage.com](http://www.falconryheritage.com)) was established with a main purpose: to collect and preserve all artefacts on the history of falconry (hawking) throughout the world. During 2005-2011 we have collected several interesting facts on falconry heritage in Trans-Caucasia. There are two pictures with falconry scenes in Erevan vicinities of Grigory G. Gagarin (1810-1893) and 3 good images of Karapapakh falconers from Naghadeh (Iran) taken in December 1912 by photographer Alexander Iyas (1869-1914) (Tchalenko, 2006). The photos of Persian falconers published in the famous “Persian Treatise on Falconry” (1908, 2003) belong to another well-known photographer Anton Sevryugin (end of the 1830’s -1933), who lived and worked in Teheran. It’s remarkable that in all of the images there are only Goshawks are used as hunting birds. Some notes on falconry in Armenia and Azerbaijan at medieval times are mentioned in the book “The Royal Hunt in Eurasian History” by Prof. Thomas T.Allen (2006). Thanks to Dr.Martin Rukhkyan and Vasiliy Ananyan we

have two unique photos with a grave-stone, situated in Khosrov Nature Reserve. On bas-relief probable there is his excellency obviously with hunting bird of prey (hooked bill). Island of Armenia is mentioned on p.255 in "The Art of Falconry" in Chapter XX. "In the Island of Armenia+ and adjacent lands, falconers, after their lanners and sakers have learned to fly at the skin of a hare, make a hare-train in the following manner: A live, young pig is disguised in the skin of the hare and permitted to run about the fields...." In the footnote reference it is written "It is probable that Frederick is referring here to the Kindgom of Lesser Armenia, founded in the Cilician Taurus A.D. 1080 by refugees from the Seljuk invasion of Armenia. This isolated Christian kingdom supported the Crusaders and carried on trade with Italian commercial cities. On p.590 of the famous "The Art of Falconry" there is the following paragraph: « Martin-Dairvault, H. Le livre du roi Dancus. Traite francais inedit du XIIe siecle suivi d'un traite de fauconnerie, egalement inedit d'apres Albert le Grand. Small 8vo. Pp.135-XIV ; notes and preface. Paris, 1883. This edition of the oldest known French work on falconry is from a translation, dated August 19, 1284, of Albertus Magnus. Dancus (sometimes spelled Danchus, Dalcus, and Daulcus) is said to have been a king of Armenia with a high reputation as a falconers; but the name is probably mythical. An interesting discussion of this treatise is fully given by the editor." Interesting article "Hawking in Armenia" of unknown author in Russian was published in 1845, Nr 6, pp.81-86. Some data is also in the article of the Czech naturalist Friedrich Anton Rudolph Kolenati (1812-1864), published in Russian in 1846. There is work on raptors as symbols in ancient ornaments in Armenia by A.A.Khachatryan (1991).

## **The Story of Nominative Peregrine Subspecies in Central Europe and Poland From the Mid of 20th Century**

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In Central and Eastern Europe Peregrine Falcon was nesting on trees, using nests of other large birds. The size of this population is estimated at around 4 000 pairs. Tree-nesting population occupied an enormous area from northern Germany, Poland and Belarus to forests of central Russia, as well as on the Baltic countries - Denmark, southern Sweden, Lithuania, Latvia, Estonia and southern Finland. In the north that ecotype appeared alternately with ground-nesting. Adapting nests of other birds in the trees Peregrines significantly widened the scope of its potential. The dominant types of nesting of Peregrines worldwide are nests on the rocks, rock shelves, on the river cliffs. This type of potential nesting sites are almost missing on the area of tree-nesting Peregrines.

Around 1950 there was a catastrophic decline in Peregrine populations' due to DDT contamination. Tree-nesting population virtually vanished. Last known tree-nests of Peregrines were found in the mid 1960's. Since that time only single isolated cases of Peregrines' nests on trees were known. That ecotype disappeared in the entire area of its existence - from Germany, Denmark, Poland and Belarus to Russia, as well as in the southern basin of the Baltic Sea.

There are isolated cases of Peregrines nesting on the trees outside the historical occurrence of tree-nesting ecotype. These did not led to a creation of area with such a dominant form of nesting.

## **German success**

The first reintroductions aimed at restoration of tree-nesting ecotype started in Germany and Poland in 1990. Different experimental methods were used. A more effective program has proved to be pursued in Germany.

German project was conducted by German Peregrine Working Group (Arbeitskreis Wanderfalkenschutz e.V.) in cooperation with German Falconers Order (DFO - Deutche Falkenorden e.V. - which provided the project with young Peregrines for reintroduction) and Hunting Corporation of Mecklenburg-Vorpommern.

Since 1990 a total of almost 400 Peregrines from captive breeding were released, additionally more than 100 birds were relocated to forests from wild nests in cities. In that Project 5 hacking stations were used, most of the birds were released by hacking; more than 60 were allocated in nests of wild Peregrines through adoption.

The first nest was found in 1996. Growth of this initial population is slow. In 2009 the total tree-nesting population in Germany was circa 25-30 pairs. In all other countries of former tree-nesting area, including Poland, there is no any single pair known. There are some possible nests on trees in Russia, near Ural Mountains, but the status of the nests there is not clear.

Our German colleagues decided to close in 2010 reintroduction of captive bred Peregrines. In one reintroduction site they will continue releasing birds relocated from nests in cities.

## **Project for tree-nesting Peregrine in Central and Eastern Europe**

The IUCN / Birdlife International after the Peregrine Conference Poland 2007 were asked by the European Peregrine Falcon Working Group to take into account the very special situation of tree-nesting population in lowland Central and Eastern Europe. In general the Peregrine Falcon as a species has the status of Least Concern assessed in 2008. A new description of the Peregrine conservation status changed in 2009 says that this species as a whole is not threatened, but tree nesting population is an exception, which needs further active protection: “Significant further efforts are needed to fully restore it across its former range, which included Germany, Poland, Russia, Belarus and the Baltic States” ([www.iucnredlist.org](http://www.iucnredlist.org)).

The German tree-nesting population is a seed for restoration of this ecotype in its whole former range. The next most important area is Poland. The size of the population in Germany is estimated as ca. 30 pairs in 2011.

Society for Wild Animals “Falcon” decided in 2009 to start Polish Peregrine Project on a new basis. The plan is to intensify reintroduction aimed at tree-nesting population on a smaller number of hacking stations. The Falcon Society has got a grant which allowed preparing new release sites before 2010 season. A total of 56 Peregrines were released in three sites in 2010 and 66 young Peregrines were released in Poland 2011 in four hacking sites.

# Birds of Prey and Owls Monitoring System in Poland –

## Methods Overview and Results

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19 species birds of prey regularly nest in Poland. In addition, there was one confirmed nesting of Saker Falco cherrug. All species of birds of prey are legally protected. Until 1975 you could legally kill Goshawks Accipiter gentilis, Sparrow Hawks Accipiter nisus and Marsh Harriers Circus aeruginosus. In 1984 the new law was introduced – with innovative, highly effective method of protecting nests and broods through the establishment of "protected zones". Around the nest the "strict protection" area is established which prohibits any forestry work and is closed to the public. Protected is the fragment of the forest / tree breeding with a radius of 200 m (ie. about 12.5 ha). In addition, during the breeding season in the area of 500 m from the nest (about 78.5 ha) it is prohibited to enter the zone and to conduct any forestry activities. Thanks to this the pressure from people (foresters, hunters, tourists, birdwatchers) decreased, the birds are not disturbed and can rear offspring. The protection zones should be created around the nests: Osprey Pandion haliaetus, White-tailed Sea Eagle Haliaeetus albicilla, Aquila chrysaetos Golden Eagle, Spotted Eagle Aquila clang, Lesser Spotted Eagle Aquila pomarina, Circaetus gallicus Snake Eagle Circaetus gallicus, Booted Eagle Hieraaetus pennatus, Red Kite Milvus milvus, Black Kite Milvus migrans, Peregrine Falcon Falco peregrinus, Saker Falcon Falco cherrug, Eagle Owl Bubo bubo. The law was slightly changed and now exact size of the zones was reduced to 100 m (3.1 ha) for the three species of Lesser Spotted Eagle, Black & Red Kite, but in the breeding season remained partial protection zone 500 m.

Searching for nests, setting borders of the occupied protection zones are committed by members of the Eagle Protection Committee (KOO). KOO is a non-governmental organization (NGO) bringing together approximately 500 members and volunteers. KOO was established in 1981 and is the oldest NGO in Poland. Every year ca. 1500 - 2000 slots are controlled. 20 most active members KOO control about 1000 nests. Each slot is monitored twice a season, which allows determining the number of breeding pairs, breeding success and the number of chicks reared. The results of these inventories are published in special reports in Newsletter of the Eagle Conservation Committee. 18 reports were published so far fo1982 –2009years.

It is worth emphasizing that the total size of the established protective zones is bigger than the area of all 23 National Parks in Poland. The forest area in Poland is around 8 140 000 ha, 83% of which belong to state. KOO estimates that approximately 60% of the nests of birds of prey have already the protective zone.

A nationwide program to monitor 11 species of common birds of prey and three extremely rare (*A. clanga*, *A. chrysaetos* and *P. haliaetus*) was launched in 2007. The project "Monitoring of Birds of prey" is implemented at the request of the government agency of the Chief Inspectorate for Environmental Protection (GIOS). This monitoring is part of the State Environmental Monitoring. Birds of prey are counted on 40 plots, each of 100 km<sup>2</sup> size. Test areas were chosen at random to ensure maximum objectivity of assessments. This allowed to estimate the abundance

of birds throughout the whole country. Details are published in reports Cenian 2009 and Neubauer et al. 2011.

For every monitoring area 4 inspections per year are performed, due to the different periods of breeding phenology of birds counting started from March 20 and ending at July 20. At each area there are nine fixed observation points. Data on observations, interpretations and ways of recording are maximally standardized. At every point all the birds are counted for 30 minutes. Methodological details are shown on <http://monitoringptakow.gios.gov.pl>.

Most common species of *Buteo buteo* was recorded on 39 of 40 surfaces. The size of breeding population is estimated at 52,000 – 63000. The rarest species is Black Kite, recorded at 9 territories with Polish population estimated at 450 - 1300 pairs. Significantly higher number of data recently published (Tomiałojć & Stawarczyk 2003, BirdLife 2004) were obtained in the case of *H. albicilla* - 1250 to 1700 pairs, *A. pomarina* 2300 - 3300 pairs. The population of Spotted Eagle *A. clanga* seems to be stable - 22 pairs. Dramatically bad is the situation of Osprey *P. haliaetus*. In 2009 only 24 nesting pairs were found.

Another project is a nationwide Common Breeding Bird Monitoring (MPPL). On the surfaces of 1 km<sup>2</sup> all species of birds are counted. In 2009 such work was performed on 562 random squares throughout the country. Field work is carried out already 10 years starting in 2000. In every season there are two waves of counting are conducted by fixed routes. The project involved 290 volunteer ornithologists (Neubauer et al. 2011).

### **Biology of artificial breeding colony of Lesser Kestrel in Armenia**

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Lesser Kestrel (*Falco naumanni*) in Armenia breeds in southern part of the country in Syunik marz at 2170 m a.s.l. The habitat is semi-desert with cereal fields and open pastures. Naturally the species breeds in local TV-tower occupying the holes of the roof. In 2006 after TV tower administration' decision to repair the roof the Armenian population of Lesser Kestrel started to decline. Armenian Society for the Protection of Birds' (ASPB) response to the potential threat was the placement of 18 wooden nest-boxes on the tower building in 2008. For the first time in the Caucasus the falcons started to breed in artificial nests. 7 nest-boxes were occupied from 18. The next step to conserve the only breeding colony of Lesser Kestrel in Armenia was installation of artificial breeding tower next to natural breeding sites of the species.

The tower itself is two containers installed on stony building with 6 meters height. There are 30 wooden nest boxes placed inside of the tower. The model of wooden nest-boxes is adjusted to climate and weather conditions of Armenia and recommended by leader specialists from Portugal and France.

Our investigations showed that first year birds were observing the tower and using it more as a roosting place than were breeding there. In 2009 first 7 wooden nest-boxes of artificial breeding tower were occupied and nested by Lesser Kestrels. In next year 10 and in 2011 12 nest boxes were

occupied. Also first year the wooden nest boxes of artificial breeding tower was lovely breeding site for Common Starlings (*Strunus vulgaris*).

Lesser Kestrel is migratory species in Armenia. Armenian population leave its breeding site in mid of August and back to breed to Armenia in early/mid April. First birds that come back from wintering grounds populate holes of local TV tower and only late arrivals occupy the nest-boxes of artificial breeding tower.

As soon as birds are back to breeding site, they start to form pairs. To attract females during courtship males hunt mice and put them in nest-boxes. Already formed pairs lay eggs in late April/early May. After 28-30 days chicks hatch from eggs. In late June and early July juveniles start to do branching and first flights.

Armenian population of Lesser Kestrel feeds on voles, mice, lizards, locusts, grasshoppers. Depends on a season and weather conditions the food ration diversifies, but mainly consists of rodents.

To find out and study other limiting factors and threats that Lesser Kestrel facing in its breeding and wintering grounds ASPB since 2009 ring them with color rings.

## **DJAVAKHETI PROTECTED AREAS: IMPORTANT SHELTER AND STEPING-STONE FOR MIGRATING BIRDS IN THE CAUCASUS**

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Three main flyways of migrating birds are located within the Caucasus Eco-region's boundaries: the Western Caspian, the Eastern Black Sea, and the Central Caucasian. The last is located in between of the first two ones with core area situated on South Caucasus Volcanic Uplands, particularly on Djavakheti plateau and mountains of Georgia, and bordering uplands of Armenia and Turkey. These forestless landscapes are extremely rich in smaller size lakes and wetlands.

Around 280 species of resident, migratory and visitor birds are registered in Djavakheti area, among them globally threatened raptors (IUCN Red List, 2011.1), such as Egyptian vulture (*Neophron percnopterus*), EN, Greater Spotted Eagle (*Aquila clanga*), VU, Imperial Eagle (*Aquila heliaca*), Lesser Kestrel (*Falco naumanni*), VU, and Saker Falcon (*Falco cherrug*), VU.

Djavakheti National Park (IUCN Category II) and Sanctuaries of four lakes and wetlands (Cat. IV) were legally established by Georgian Law in 2011. Totally, they cover 16568 ha of land area. A year before Arpi Lake bordering National Park and 2009 was established in Armenia (21133 ha). Thus, protected territory of grasslands, lakes and wetlands of South Caucasus Volcanic Uplands create considerable area serving as important shelter and stepping-stone within the Central Caucasian flyway of migrating birds.

Infrastructure of Djavakheti National Park is under establishment: construction of administration and visitor centers, birdwatching facilities and arranging the tourists' trails either ongoing or are under the planning.



According to the data collected during last five years as well as to the all available historical data, there are at least of 34 species of birds of prey (*Falconiformes*) that have been recorded within the limits of Djavakheti National Park and adjacent areas, or around 85 % of the raptor species recorded in Georgia. The nesting of at least six was confirmed by factual materials in the course of study. Five species were classified as a regular breeders - Western Marsh-Harrier (*Circus aeruginosus*), Montagu's Harrier (*Circus pygargus*), Buzzard (*Buteo buteo menetriesi*), Long-legged Buzzard (*Buteo rufinus*), Common Kestrel (*Falco tinnunculus*). Beside that, Red-footed Falcon (*Falco vespertinus*) is occasional breeder to study area and Peregrine Falcon (*Falco peregrinus brookei*) is probably nesting species in Park.

Six species of owls (*Strigiformes*) were registered within the boundaries of Djavakheti National Park and adjacent areas, or around 67 % of owl species recorded in Georgia: Common Scops-owl (*Otus scops*), Eurasian Eagle-owl (*Bubo bubo*), Little Owl (*Athene noctua*), Tawny Owl (*Strix aluco caucasica*), Long-eared Owl (*Asio otus*), Short-eared Owl (*Asio flammeus*). Two species - Eurasian Eagle-owl (*Bubo bubo*) and Short-eared Owl (*Asio flammeus*) are nesting species and Little Owl (*Athene noctua*) probably nests in small numbers.

The full Check-list of the birds of prey and owls recorded in Djavakheti area with short information and comments on the status of presence, dates of presence, distribution within the boundaries of Park and in adjacent areas, habitats selection, numbers of breeding pairs and population trends, etc is prepared and presented. Additionally the peculiarities of the passage, location of the stop-over sites, halting and roosting places of raptors in study area are discussed on the basis of materials collected in previous years. Description of the most important for raptors sites and areas are presented. The major threats and limiting factors are analyzed and the general conservation problems are discussed.

## **The Institute of Zoology - 70**

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### **About the Institute**

Zoological researches in Georgia started in 1932, when Transcaucasus Zoological Sector was founded. Then it was changed into the Georgian branch of the Academy of Sciences of the USSR. Later in 1941 on the basis of it the Institute of Zoology of the Academy of Sciences of Georgia was established. It was headed by the famous Transcaucasus entomofauna researcher, Academician of the Academy of Sciences of Georgia P.A. Zaitsev.

The Institute has been carried out researches since its establishment in following directions: Biodiversity of Invertebrate and Vertebrate Animals, Systematics (using karyological and biochemical methods), Zoogeography, Ecology, Evolution, Problems of Reintroduction and Conservation, in addition of this there are studies in Entomo and Animal Parasitofauna, Natural and Storage Lakes of Georgia, River Ecosystems and their Bioproductivity.

Results of scientific research of the Institute are published in its main issue "Proceedings of the Institute of Zoology" (up today 22 volumes are published). Besides of this, the following books series have been published: "Materials of the fauna of Georgia", "Parasitological collection", "Hydrobiology and ichthyology of internal reservoirs of Georgia", "Ontogenetic development of

animals“as well as numbers of monographs. Many popular scientific booklets are published in order to popularize zoology.

Nowadays the Institute of Zoology consists of 5 scientific laboratories, the department of collections and the library.

Besides of the main office, in Tbilisi, the Institute has some scientific stations.

### **Research Interests of the Institute**

- Zoogeography and fauna formation of Georgia
- Biodiversity of the protected territories
- Animal ecology and ethology
- Biodiversity conservation

### **Research Program of the Institute**

The goal of the program is to study systematics, species composition, distribution, ecology and behavior of the groups of aquatic and terrestrial invertebrate and vertebrate animals spread in Georgia; as well as determination of main principles of the monitoring and conservation; to specify species composition of animals of the protected territories and wild nature; to study the role of harmful, parasitic and beneficial animals in various ecosystems with the aim of bioindication and biocontrol; to study the influence of climatic and anthropogenic factors on the animals population of Georgia; to develop protective measures of those rare and endemic species of Georgia which are included in the IUCN Red List.

### **Main Directions of the Program:**

- Current condition of vertebrate animals and development of the bases of protection;
- Entomopathogenic Nematodes;
- Free living phyto and entomo parasitic nematodes;
- To study parasitic status on the territory of Georgia;
- Combined hydrobiological and ichthyological investigation of internal reservoirs and the Black Sea Coast;
- Karyological, cytomorphological and biochemical researches of animals of Georgia.

### **Projects Foreseen by the Program**

- Checklist and register of fauna of Adjara (2009-2011)
- Register of fauna of Meskhet-Javakheti (2012-2014)
- Register of fauna of Kartli-Kakheti (2015-2018)
- Comparative behavior of hamsters of Georgia (2017-2019)
- To study current condition of terrestrial vertebrate animals on the basis of climatic and anthropogenic changes (2009-2010)
- Monitoring of Chiropterans of Georgia and their residence (2010-2019)
- To study current condition of ornithofauna of Georgia on the basis of climatic changes (2010-2012)
- The influence of climatic and anthropogenic factors on the condition of reptiles of East Georgia (2012)
- To study potato stem nematode of the potato-growing regions of East Georgia (2010-2012)
- An evolution of citrus nematodes (2017-2019)
- An evolution of nematodes of the order Dorylaimida (2017-2019)
- Entomopathogenic nematodes as biological control agents (2010-2015)
- Soil mezofauna and biodiversity for rehabilitation of mountain pastures (2009-2012)
- Ecologic- parasitic research of animals of the Tbilisi Reservoir coastal stripe ( 2010-2012)
- To research main parasitocomplexes of the Lake Jandari (within Georgia) (2013-2015)
- Eco-parasitic study of nidus of infections of Visceral leishmaniasis in Tbilisi and its environment (2016-2019)

- Combined hydrobiological research of the Tbilisi Reservoir (2010-2012)
- Evaluation of the current condition of hydrobionts of the Black Sea Coastal stripe (2011-2019)
- Research and monitoring of lakes of the Javakheti Plateau (2016-2019)
- Karyological, citomorphological and biochemical research of some groups of animals of Georgia to determine taxonomy and systematics (2010-2019)

#### **Grants Financed by The National Science Foundation and International Foundations**

- Checklist and register of fauna of Adjara (2009-2011)
- Soil mezofauna and biodiversity for rehabilitation of mountain pastures (2009-2012)
- Current condition of vertebrate animals biodiversity of mountainous region of the East Georgia (Greater Caucasus) (2010-2012)
- Dangerous nematode diseases of potato on the mountainous regions of Samtskhe-Javakheti (biodiversity of nematode population, distribution of pathogenic species) (2010-2011)

#### **Participation in Different Arrangements**

- Monitoring of the terrestrial vertebrates included in the Red List in the corridor of Baku-Jeihan oil pipeline (conducted by BP)
- Extenuating measures of the influence on Chiropterans in the corridor of Baku-Jeihan oil pipeline (monitoring)
- To create ornithological base, the first part of which (non Passeriformes) is mainly completed, with the same purpose cooperation with Bird Ringing Centre of the University of Helsinki continues.
- Regular control of venomous animals in the houses located on the territory of Sololaki allay and LLC Energoinvest

#### **Participation in International Conferences, Symposiums and Seminars**

- May 3-6, 2010 Bonn (Germany) 16<sup>th</sup> meeting of an Advisory Committee of the Agreement on The Conservation of Popularizations of European Bats (Eurobats); participant I. Natradze.
- May 8-10, 2010 Batumi International conference and exhibition “Batumi –Spring 2010”; participants - staff members of the Institute: M.Kokhia, M.Lortkipanidze, E.Tskitishvili, M.Kuchava
- May 3-7, 2010 Lyon (France) hosted 18<sup>th</sup> European Biomass Conference and Exhibition “From Research to Industry and Markets “; participants - M. Kokhia, M. Lortkipanidze.
- September 12-16, 2010 Eberswalde, Germany “IUFRO 2010”; participant - M. Lortkipanidze.
- October 6-10, 2010 Nature Reserve Zingaro, Castellamarre del Golfo, Scopello, Sicily, Italy – Workshop “Research and Monitoring for and with Raptors in Europe”, participant – A.Abuladze
- November 2-4, 2010 Cairo (Egypt) 2nd International Conference on Chemical, Biological and Environmental Engineering (ICBEE 2010), participant - M. Kokhia
- November 10-12, 2010 Wageningen (The Netherlands) Scaling and Governance -Towards a New Knowledge for Governance in Complex System, participant – M.Kokhia
- November 25-30 2010 Khijadiya, Jamnagar, Gujarat, India, First Global Bird Watchers’ Conference, participant – A. Abuladze

## **ASSESSMENT OF HUNTING PRESSURE ON MIGRATING RAPTORS ALONG EASTERN BLACK SEA BOTTLENECK IN BATUMI, GEORGIA**

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During the autumn migration season of 2011 the area around the ‘Batumi bottleneck’ was investigated on hunters activity, their success-ratio and their impact.

The survey was conducted between 26<sup>th</sup> of August and 25<sup>th</sup> of September 2011. This period included the main migration events for Honey buzzard, Black kite, Marsh harrier, Montagu’s harrier, Pallid harrier, Booted eagle and Levant sparrow hawk, including both adult and juvenile peaks.

From the Batumi bottleneck, only the area with a corridor width lower than 40km was considered, restricting the study area to the province of Adjara, an autonomous republic within Georgia, and Guria only. Given the north-south length of the two provinces is 60km, the surface investigated approximates 2400 km<sup>2</sup>. All suitable hunting locations were located using a GIS model based on attributes derived from known hunters hides found in 2008 and 2009. These locations were classified in a grid of squares, 5x5km. Using a random protocol, 16 squares were selected for investigation. Squares where hunting activity was noted on the first visit, were visited a second time later in the season.

The hilltops and ridges in all of these squares were scanned for hunter activity. All found remains of shot raptors were identified and counted. Using a GPS, all locations where a trace of raptor shooting was found were stored. To estimate the number of hunters in each square, individual hunters were counted in the areas that are presumed ‘suitable’. Only hunters present for more than one hour and visually targeting migrating raptors were included. To get an idea of the success rate of the hunters, a hunter present in each square was accompanied for at least one hour. For all of his shots fired, the bird targeted was identified. We counted how many birds were wounded or killed, how many of them were found and if possible we measured their physical condition. This hunter was also questioned using a questionnaire, to get an idea of this profile and motivation.

Simultaneously with the hunters survey the team of raptor counters of the Batumi Raptor Count has recorded all migration raptors of interest using similar distance codes between the three stations. They also noted the amount of shots fired heard around the station and visual observations of birds wounded or shot dead.

Based on the amount of the raptors found in each square, quality of the square for hunting, hunters success and the raptor count, we will be able to estimate the total number of birds killed per species, per season. Results are expected to be published in May 2012 for master dissertation.

Preliminary analysis estimates the hunter densities averaging 20 hunters per square. Hotspots for hunting raptors are rare, but at these places up to 100 hunters per square can be found. The shooting starts at the end of August and is most intense in September and continues well into October. They shoot mainly for amusement and food. The Honey Buzzard is targeted and killed the most. But every raptor that passes low enough is shot at. Some places are renowned for their eagle migration and the impact on Lesser Spotted Eagle could be huge with a reported maximum of 18 eagles shot in one day by one hunter. Also there seems to be a special role for sparrow hawk trappers (Bazieri) who take their gun when they go trapping, shooting medium sized raptors from their hides. They make up for most of the harrier (Marsh, Montagu’s and Pallid) casualties.

