ENR 5.6 Bird migration and areas with sensitive fauna

1 Bird migration

1.1 As of January 1st, 2008 the number of bird species on the territory of Georgia is known as 355. From these at least 320 species are regular elements in Georgian avifauna – year-round resident breeders, migratory breeders, transit migrants, winter visitors and year-round non-breeding visitors. About 35 species are vagrants or occasional elements in Georgian avifauna. Structure of Georgian avifauna undergoes essential changes during the seasons of a year. Not less than 215 species or more than half of bird species of Georgia are migratory birds, which are absent in the winter. For the majority of the birds an active period is limited by 6-7 months in the year, for a number of migratory birds the active period is shortened till 4-5 months. The breeding species in Georgia appear in the spring and dominate at the beginning of the summer. Transit migrants dominate during the periods of the seasonal migrations. Duration of their presence on the territory of Georgia is short especially in the spring for some species it can not be longer than a few days.

Bird migration and nomadic movements take place in Georgia during the whole year. However, there are sharply seen two migratory periods – spring and autumn passage.

The important Euro-African and Euro-Asian migratory fly-ways of many bird species cross the territory of Georgia, from areas of their nesting sites to the wintering areas and back. Not less than 230 species are regularly noted at the period of seasonal migrations in the spring and autumn. Also, about 40 species are irregular migrants. On the whole, the birds' migratory fly-ways on the territory of Georgia are linked with natural "guiding" lines. Mainly, they are linked with outline of the Black Sea coast line and with valleys of the large rivers, first of all - Rioni, Mtkvari and with their tributaries. Also, they are linked with mountain ranges, mainly with the Greater Caucasus Chain and its spurs, and less with the Surami ridge and with ranges of the Lesser Caucasus. There are known primary, secondary and additional flyways, as well as concentration places of migratory flocks, so-called "migratory bottle-necks" and stop-over sites (places of their stay for the resting).

The most important bottle-necks are located in south-western part of Kolkhida Lowland on the coastal lowlands of Ajara (Adzharia), on the passes of the Great Caucasus, in valleys of large rivers – Mtkvari, Rioni, Tergi (Terek), and Alazani.

1.2 Spring migration

Spring (second decade of March – first decade of May)

General direction of the migration is from the South to the North. There are using all suitable valleys of the rivers and the coast of the Black Sea. Part of the flocks flies above the sea surface in few kilometres off the coastline. In the part of the river Mtkvari valley, which is latitudinally located (from Khashuri town to the border with Azerbaijan), birds are flying from the west to the east (from Khashuri town to Tbilisi city) and from south-east to north-west (from the border to the mouth of Aragvi river). Transit migrants are dominating. Their species composition and numbers vary to a great extent, sometimes in a very short time. For one species migration is begun, for the others the passage is reaching the peak and for the third it ends, the amount of birds is changing every day.

One can see four waves of the birds' migration on the territory of Georgia in the spring:

- **First wave** – from the beginning of March till the middle of March;
- **Second wave** – second half of March. In this time, there are dominating some of the birds-of-prey, waterfowls, rails (waders and gulls), and crovids (*Corvidae*);
- **Third wave** – from the first decade of April till the third decade of April. That is the most intensive migration wave as well in quality as in quantity. More than half of the spring migrants migrate in this time;
- **Fourth wave** – from the end of April till the first decade of May. This is a time of migration of the latest migrants (cuckoo, oriole, swift and some other species of small passerines).

Arrivals of the migrant birds, which are nesting in Georgia, continue from 5-10 May to 20-25 May, with peak between 10 and 20 May.

The most important factors of intensification of spring migration are the meteorological conditions on the plains of the North Caucasus and the existence of the good warmed grounds in Transcaucasia. The soaring birds (e.g. large birds of prey) are in need of such places with the ascending flows of air.

Trans-migration is going in the daytime and in the night. Diurnal activity of different species is considerably varying each from other during the period of the spring migration. 4 peaks are noted in diurnal activity of the migrants. Main peak of the migration usually comes in the time between 9.00 and 12.00 (more than 60 percent of the total migrants between the 9.00 and 11.00 AM). The intensity of migration sharply decreases to the noon and then resume after 16.00. At dusk, there is noted the third peak of the migration of small flocks of passerines, waders, and some species of the waterfowls and birds of prey.

The fourth peak have place at night, when some species of ducks, geese, waders, and cranes are migrating.

Main flight altitude for most of the migrants is around 20-50 M; some of the small bird species (*Passeriformes*) prefer the 5-20 M. The large bird species (waterfowl, birds of prey, cranes, gulls, etc) on the contrary usually fly higher (100-250 M). The maximal flight altitudes do not exceed 800 meters above the ground level (AGL) in Georgia. However, considering a mountain terrain and the fact that birds are flying through mountain passes, an absolute flight altitude can reach 2500 M above sea level. The collisions with flocks of the large birds (cranes) and with separate birds (vultures) are possible till 4000 M above the sea level and even over it.

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Heights of flight are depending on meteorological conditions and usually are maximal in clear (sunny) windless days. During strong head winds the birds usually select lower heights. Rainy weather and frost lower height of the flight. However, light rains have a lower impact on the height of the flight than the strong cloudbursts.

1.3 Autumn migration

Autumn (September – end of October)

General direction of the migration is from the South to the North. The birds' flocks cross the Main Caucasus Ridge through the passes in the gorges of the main rivers and go down to the intermountain plains. They do not follow to the bends of these riverbeds. The main part of the birds flies along the coastline of the Black Sea. The other part flies above the sea along the line, which connects the Crimea peninsula with the Kolkhida Lowlands (at the Poti town). The lesser part flies above the sea to Batumi town. In the part of the river Mtkvari valley, which is latitudinally located (from Khashuri town to the border with Azerbaijan) birds fly form the East to the West. However, a part of them flies downstream of the Mtkvari river (from Tbilisi city), from northwest to south-east.

Birds gather in large flocks in the Kolkhida/Colkhic Lowlands.

Transit migrants are dominating, their species composition and numbers vary to a great extent, sometimes in a very short time.

Autumn passage is longer and more active than the spring passage. The first autumn migrants appear even at the beginning of August. The autumn passage ends at the turn of November.

There are shown three waves of the autumn migration:

- **First wave** – at the beginning of September;
- **Second wave** – from the third decade of September till the first decade of October;
- **Third wave** – at the end of October.

Amount of the migrants varies noticeably from year to year. One of the most numerous groups are passerines (*Passeriformes*), waders (*Charadriformes*), birds of prey (*Falconiformes*), geese (*Anseriformes*), pigeons (*Columbiformes*).

The cold snaps on Russia territory, as well as also weather conditions (direction and force of winds, intensity and character of precipitation, height and density of the cloudiness) in some regions of Georgia and in adjacent regions of Russia and Turkey influence the intensity of the autumn passage.

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1.4 Wintering

Winter (December – February)

This period is characterized by poor species structure, by limited territorial distribution of large aggregations of birds, by high numbers of some wintering species' and by essential fluctuations of birds number from year to year.

At the later period of the winter (the last decade of February) it is noted increasing of the diurnal activity of all species and some revival of activity in the movements of both flocks of wintering species and resident breeders. This revival is linked with changes of weather conditions on plains of Northern Caucasus and, usually is short-term. Sometimes, in cold years, it can't occur at all.

The territory of Georgia is of important significance for wintering birds. More than 130 species are wintering there and more than 40 of them are gathered in numerous flocks. Birds are distributed irregularly in the places of wintering. Mostly, they prefer the open and semi-open areas on the plains in the regions with generally warm and snowless winters. The basic places of concentration of birds on the wintering are situated in mosaic habitat, on the open sites, alternated by forest, bushes, and reed beds. All those are used as overnights sites and as shelters from a bad weather. During the warm and snowless winters, birds are spread wider on the wintering areas, than during the cold winters, when they are concentrated on the small sites and are less mobile.

The most important wintering areas are situated:

- In Western Georgia - at Kolkhida (Colchic) Lowland, at coastal lowlands, in flood-plains of lower parts of large rivers of Black Sea basin (Chorokhi, Kintrishi, Natanebi, Rioni, Khobi, Inguri, Galidzga, Kodoti, Kelasuri, Gumista, Bzipi, Psou) and of their inflows;

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- In Eastern Georgia - in lower and pre-mountain parts of the flood-plains of the large rivers of Caspian Sea basin (Mtkvari, Alazani, Khrami, Iori and their inflows), in semi-deserts of Iori Table-land, at lowlands, hills and belt of low mountains, around of large non-freezing lakes. The most part of the birds are wintering in the anthropogenic landscapes, including cities, where food resources and conditions of foraging are more acceptable in comparison with natural landscapes.

Number of birds changes during the wintering season, reaching maximum usually in the middle of 1st – the beginning of 2nd decades of February.

The greatest aggregation of wintering birds occurs on Kolkhida Lowland, where up to 60 % of birds from the total of those wintering in Georgia are recorded during the some years. Seaside lowlands also play the important role as wintering habitat, here are recorded up to 10-25% of the birds wintering in Georgia in different years. Up to 15-20 % of birds, wintering in Georgia, are recorded in semi-desert landscapes of the Iori Table-land.

The wintering rooks, gulls and small passerines form large flocks in the eastern Georgia and, particularly, along the valley of the Mtkvari River from the town Tbilisi to the border with Azerbaijan. Sometimes, other birds - waders, cormorants, and pigeons can form large flocks, too.

1.5 Number of birds

Number of the migrants varies noticeably from year to year. Unfortunately, the available data, does not allow defining an exact number of the birds, which are flying during the seasonal migrations through the territory of Georgia. More or less accurate numerical data were gathered just for separate groups of birds (birds of prey, some waterfowl species, cranes, storks, some other birds). At the period of seasonal migrations in Georgia the most numerous groups are passerines (*Passeriformes*), waders (*Charadriformes*), birds of prey (*Falconiformes*), geese and ducks (*Anseriformes*) and pigeons (*Columbiformes*).

General estimations of the number of the migratory and wintering birds are:

- About 250 bird species - from 25 up to 40 millions of individuals, (depends of the weather conditions) migrate along the Black Sea coast;
- More than 120 species (about 1 million of individuals) migrate into the both sides along the valley of the Mtkvari river, within the limits of Georgia.

2 Areas with sensitive fauna

The sites with more sensitive fauna are allocated in the following places:

1. River mouth of the Chorokhi River and the water bodies on the Kakhaberi plain – from the autumn till the spring there is a large aggregation of gulls, which are feeding at the landfill on the river bank. At the end of winter, large flocks of the grebes (*Podicipedidae*) and coots (*Rallidae*) gather in the river mouth. In summer, gulls are nesting on the islands in the river mouth;
2. Surroundings of the town Poti – dozen thousand of waterfowl birds (coots, grebes, ducks and etc.) sit in some hundred meters far from the shore in the sea whole winter in daytime. In the evening dusk, they fly to the swamps of the Kolkhida (Colkhic) Lowland for feeding (to the East from Poti town) and then at the early morning they fly back to the sea;
3. Wintering rooks, which spend the night on high trees along the river and roads, and gulls that spend the night on river shallows are fed on the landfills in the Tbilisi surroundings. The large flocks of rooks and crows fly every day in the late autumn and in the winter - in the morning from the southeast to the northwest and in the evening back.

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