

РОЗДІЛ І Географія

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Physical and geographical features of swamping of some areas of the basin of the river Pripyat in Volyn and Brest regions protected under the Ramsar Convention and their role in the life of migratory birds

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Долина р. Прип'яті є одним із найважливіших в Європі континентальним міграційним шляхом перелітних птахів – мігрує майже 150 тис. особин. Для їх відпочинку у Волинській та Брестській областях виділено по два Рамсарських угіддя – це „Заплава р. Прип'ять” (12000 га), „Заплава р. Стохід” (10000 га), „Середня Прип'ять” (90447 га) та „Ольманські болота” (94219 га). Їх клімат помірно континентальний. Особливістю ландшафтів є значне поширення заболочених низин і торфовищ. Заболочення, крім значної кількості опадів та рівнинного рельєфу також спричинене вертикальним переливом артезіанських вод в ґрунті (65-70 см/рік), що забезпечує функціонування болотних комплексів. Угіддя „Ольманські болота” відзначаються локальними водотривкими товщами четвертинних відкладів, що сприяють процесу заболочення. Аналіз топографічних карт засвідчує зменшення сучасних площ заболочення порівняно з 1911 р., що спричинено господарською діяльністю людини. На описуваних територіях проживає та мігрує під час перельоту 223 види птахів, серед яких 33 зареєстровані під час перельоту і 7 видів зафіксовані під час щорічних масових міграцій та можуть зимувати. Під час перельоту птахи знаходять усе різноманіття кормів, оскільки кормова база регіону різноманітна і досить стійка.

Ключові слова: рамсарські угіддя, „Заплава р. Прип'ять”, „Заплава р. Стохід”, „Середня Прип'ять”, „Ольманські болота”, долина р. Прип'ять, міграційний коридор, перелітні птахи, міграції птахів.

Зузук Ф. В., Сухомлин К. Б., Залеский И. И., Погребский Т. Г., Ковальчук С. И. Физико-географические особенности заболачивания отдельных территорий бассейна р. Припять у Волынской (Украина) и Брестской (Беларусь) областях, охраняемых согласно Рамсарской конвенции, и их роль в жизнедеятельности перелетных птиц

Долина р. Припяти является одним из важнейших в Европе континентальным миграционным путем перелетных птиц – мигрирует около 150 тыс. особей. Для их отдыха в Волынской и Брестской областях выделено по два Рамсарских угодья - это «Пойма р. Припять» (12000 га), «Пойма р. Стоход» (10000 га), «Средняя Припять» (90447 га) и «Ольманские болота» (94219 га). Их климат умеренно континентальный. Особенностью ландшафтов является широкое распространение заболоченных низменностей и торфяников. Заболачивание,

криме значительного количества осадков и равнинного рельефа, обусловлено вертикальным переливом артезианских вод в почвенные (65-70 см/год), что поддерживает функционирование болотных комплексов. Угодье «Ольманские болота» характеризуется локальными водоупорными толщами четвертичных отложений, что способствуют процессу заболачивания. Анализ топографических карт свидетельствует об уменьшении современных площадей заболачивания по сравнению с 1911 г., что вызвано хозяйственной деятельностью человека. На описываемых территориях проживает и мигрирует во время перелета 223 вида птиц, среди которых 33 зафиксированы во время перелета и 7 видов во время ежегодных массовых миграций, которые могут оставаться на зимовку. Во время перелета птицы находят полное изобилие кормов, поскольку кормовая база региона разнообразна и достаточно устойчивая.

Ключевые слова: рамсарские угодья, „Пойма р. Припять”, „Пойма р. Стоход”, „Средняя Припять”, „Ольманские болота”, долина р. Припять, миграционный коридор, перелетные птицы, миграции птиц.

F. Zuzuk, K. Suhomlin, I. Zaleski, T. Pogrebskyi, S. Kovalchuk. Physical and geographical features of swamping of some areas of the basin of the river Pripyat in Volyn and Brest regions protected under the Ramsar Convention and their role in the life of migratory birds

Valley of the river Pripyat is one of the most important in continental Europe way of migratory birds – migrate nearly 150 thousand individuals. For their rest in Volyn and Brest regions were highlighted two Ramsar sites - "Floodplain of the river Pripyat" (12,000 hectares), "Floodplain of the river Stokhid" (10,000 hectares), "Middle Pripyat" (90,447 hectares) and "Olmanski swamps" (94,219 hectares). Their climate is temperate continental. The feature of the landscape is widespread lowland wetlands and peatlands. Waterlogging, besides a large amount of precipitation and flat terrain also caused by vertical overflow of artesian water in the soil (65-70 cm/year), which ensures the functioning of marsh complexes. The site "Olmanski swamps" marked by local water-impermeable strata of Quaternary sediments that contribute to the process of waterlogging. Analysis of topographic maps certifies reduce of waterlogging areas in nowadays compared to 1911, caused by human activities. In the described areas are living and migrate during the flight 223 species of birds, including 33 registered during the flight and 7 species found during the annual mass migration and can hibernate. During the flight birds can find the variety of feed, forage base of the area is diverse and relatively stable.

Keywords: Ramsar sites, "Floodplain of the river Pripyat", "Floodplain of the river Stokhid", "Middle Pripyat", "Olmanski swamps", valley of the river Pripyat, migration corridor, migratory birds, migration of birds.

Formulation of scientific problem and its significance. Floodplain of the river Pripyat is an important migratory corridor, which was the basis for the allocation in Volyn and Brest regions, according to Ramsar agreements, of four wetlands for nesting and rest during the flight of a large number of water-marsh birds [2; 8]. Human activities have a significant impact on these lands, because of that today more acutely appear the question of studying their physical and geographical situation, in order to maintain their original integrity, which has a European and a worldwide ecological significance. Today we can confidently assert that the conservation and protection of Ramsar sites in the near future will be one of the important problems of comprehensive physical-geographical and biological research.

Analysis of recent research on the issue. We don't know the specific research of areas protected under the Ramsar agreement. The most complete information on these lands as integral Belarusian and Ukrainian Western Polissya we found in the famous monograph "Problems of nature in the transboundary region Belarusian and Ukrainian Polesya" edited by V. Palienko [11] as well as in the relevant articles of V. Palienko with coauthors [3]. The site "Floodplain of the river Pripyat" as whole complex is described in the monograph "The nature of the Western Polissya, adjacent to Hotyslavskiy career of Belarus" edited by F. Zuzuk [10] and "Shatsk Lake District T. 1. Geological structure and hydrogeological conditions"[15] and in the article of F. Zuzuk and I. Zaleski "Paleogeography of Tours Lake"[7]. In addition, hydrogeological characteristics and their effects on waterlogging of "Middle Pripyat", "Olmanski swamps", "Floodplain of the river Pripyat" and "Floodplain of the river Stokhid" are considered by A. Hochachko with coauthors [9]. In these scientific studies is observed general information about the geology, hydrogeology, surface water, climate, topography, soils, waterlogging region of the above-mentioned four Ramsar sites. Some information about the latest we found from Internet sources [1; 4-6; 12-14].

Formulation of goals and objectives of the article. The purpose of research – to analyse based on existing published books the physical and geographic conditions of four Ramsar sites – "Floodplain of the river Pripyat", "Floodplain of the river Stokhid", "Middle Pripyat" and "Olmanski swamps", including wetland complexes, as the foundation, which provides livelihoods of migratory birds of one of the most important in continental Europe way of migratory birds – migrate nearly 150 thousand individuals.

Materials and methods. To summarize were used published materials from scientific books, articles and official Internet media. In the research were used the following methods – statistical, comparative, mapping, induction and deduction.

The main material and justification of the results of the study. Location of Ramsar sites "Floodplain of the river Pripyat" and "Floodplain of the river Stokhid" in Volyn region (Ukraine), "Middle Pripyat" and "Olmanski swamps" in the Brest region (Belarus) is shown in fig. 1. Their area is: "Floodplain of the river Pripyat" (12,000 hectares), "Floodplain of the river Stokhid" (10,000 hectares), "Middle Pripyat" (90,447

hectares) and "Olmanski swamps" (94,219 hectares) [2; 8]. Valley of the river Pripyat is one of the most important in continental Europe way of migratory birds – migrate nearly 150 thousand individuals [13].



Figure 1. Location of Ramsar areas

Climate. The climate of the four areas under consideration as a whole, because the differences between them are practically absent. Radiation and light conditions are characterized throughout the year by significant changes. The shortest day in December – 8.6 hours, and the longest – 16 hours – in June. The duration of sunshine in December – 37 hours, and in May-August – 269-254 hours. Polesie is influenced by the Atlantic, and it is moderately cool winters with frequent thaws and cool summer with ample moisture. Western transfer of air masses is accompanied by cyclonic or anticyclonic activity. During the year is observed the winds of the west and north-west direction. In summer, the wind speed is 2.7-3.8 m/sec, and in the winter – 4.1-4.5 m/sec. The lowest average temperature is usually fixed in January. In March the average temperature is usually higher than in February and is equal to 3,2 °C. From March until May (12,5 °C), it quickly rises. Until July (19,2 °C) it increases gradually. Since September monthly temperature is lowered by 4.8-5.7 °C. In December, it is already negative, generally in the range -1.6 ...-1.9 °C. Spring frosts are terminated on average 19 ... 23 of April and begin 9 ...10 of October and warm autumn - 24 of October, the cold - 19 of September. Precipitation are prolonged, heavy, or drizzling. The average annual precipitation 554 ... 618 mm. During the warm period of the year it falls to 70 % of annual precipitation. Minimum number of them is in January – 29 ... 32 mm. In March falls same number of precipitation as in January. In April, their number increases. In summer falls 197-234 mm of rainfall. In some years, their number may exceed the annual rate in 2.0-2.5 times. In autumn dominated incessant rainfall with the number of 120 ... 134 mm. The smallest amount of precipitation 7 ...

13 mm per decade recorded by the second decade of January to the third decade of March. Transitional periods – spring and autumn – in some years also tend to lack of precipitation: 1986, 1993, 2003, 2005 years. Snow cover appears at the end of December and lasts an average of 70 days. In some years, can lay 143-144 days. On warm winter snow cover lasts 32 ... 31 days. The height of the cover is very variable – from 3-5 cm to 31 cm. In March, the snow cover is usually absent. The average snow cover contains 13-17 mm of moisture.

Hydrogeology of “Floodplain of the river Pripjat”, “Middle Pripjat”, “Floodplain of the river Stokhid”, “Olmanski swamps”. A peculiar feature of the landscape of “Floodplain of river Pripjat” is a significant distribution of biogenic landforms (swampy lowlands and peat), formed within the outwash plains [2; 6; 9]. The geo-structural aspect of the headwaters area of “Floodplain of river Pripjat” is located within the Volyn Paleozoic uplift, and only the extreme south-western part – within the Lviv Palaeozoic depression [9]. In addition to its structural state and lithological characteristics of water-bearing rocks advanced hydrodynamic environment determine the types of migration of groundwater reservoirs and other abiotic and biotic components that cause the migration of groundwater in a heterogeneous environment. Installed the close relationship of pressurized artesian waters that circulate in fractured rock marl-chalk strata at depths of 30 to 120 m with groundwater of Quaternary sediments. The vertical overflow artesian pressure water into the ground up to 70 cm/year, which ensures the functioning of wetland complexes [9].

The floodplain of "Middle Pripyat" is bounded on the west to the meridian of the village Lemeshevichi that is eastern to Pinsk, and in the east – eastern to the town of Turov, Gomel region [4; 8; 12-14]. In the geostructural aspect the floodplain of "Middle Pripyat" is located within the Pripyat Trough rift system laying Devonian time. In the area of the floodplain of "Middle Pripyat" from the town of Pinsk and to the mouth of river Styr stands Woodland saddle, which is bounded on the east with Mogilev-Stohodskoy tectonic zones deepness. In Paleozoic and Mesozoic-Cenozoic periods of geological development of Pripyat Polesie saddle shaped deflection tectonic focus on lowering individual units continued in the Anthropogenic period. Hydro-geological conditions of "Middle Pripyat" formed thanks to the hydraulic movement of groundwater from the adjacent Devonian and Cretaceous sediments, and groundwater is enriched with atmospheric precipitaton [8]. The Quaternary cover alluvial strata, which are confined groundwater within the floodplain developed lake-glacial and interglacial deposits, forming local impermeable strata to prevent vertical infiltration of groundwater, which contributes to their accumulation in the surface array, where the process of eutrophication [9].

"Floodplain of the river Stokhid" inherits Stokhid-Mogilev tectonic zone [2; 4; 5-6]. The hydrodynamic conditions determine the artesian water-bearing complex of Turonian and Maastrichtian Upper Cretaceous tiers circulating in fractured rock marl-chalk strata. The amount of overflow water pressure in the soil, which provides swamping, is 65 cm/year. Within the floodplain are ubiquitous soil water reservoirs which are alluvial sediments of various lithologic-size distribution, fed by precipitation. Together, this ensures optimal water regime to waterlogging.

"Olmanski swamps" located at the junction of the administrative borders of Rivne, Brest and Gomel regions [4; 8]. The hydrodynamic regime of the marshes formed by collectors of groundwater of Polesie saddle medium-Upper Riphean, Upper Paleozoic aquifers and horizons. They are interconnected with different soil water deposits climatoliths of Pleistocene. Together they provide additional food swamp waters. Particular importance to "Olmanskies wetlands" has spread of thick layer of alluvium impermeable formations of Zavadovskiy climatoliths holding from further infiltration of ground water. In areas where the presence of the confining layer, forming marsh areas.

Hydrology and relief of "Floodplain of the river Pripyat", "Middle Pripyat", "Floodplain of the river Stokhid", "Olmanski swamps". Swimming pool area of "Floodplain of river Pripyat" is 121 thousand km² with a length of 761 km, average slope 0.000 085 (8.5) cm/km or 0.2%. Watershed line, where the marshes of the river Pripyat and its tributaries is almost invisible. Both sides of the valley are barely noticeable slope to the east of the river Dnipro. The river valley is flat and hardly expressed. Within settlements Ratne, Komarovo, Vetly, Svalovichi southern part of the valley is marked lanes and sandy hillocks (dunes) up to 3-5 m. Floodplain is wide, up to 8-10 km, low-lying, marshy, with numerous old river beds, canals, arms, oxbows. After the spring flood for 1.5-2.5 months floodplain almost impassable. Watercourse is meandering. Its width at water post Rechyca can reach up to 40 m. with depth of 1.0-1.5 m., the flow velocity is 0.3-0.4 m/s. The bottom of the river is very silted. The spring flood is usually the highest at the end of March - early April. Low water has a low resistance and low water rise in spring flood. The summer-autumn floods are not in all the years, usually not high. Water power of Pripyat is surface (snow and rain) and underground (perched and deep). The surface snow is 38-68 %, and surface rain – 36-25 %. In the medium and high-water years, it is an average of 74% of annual runoff, and in dry years – 93 %. Water consumption is 10.4 m³/s, the area of the water section of 63 m², the average flow velocity of 0.17 m/s at a maximum of 0.30 m/s, the river width of 53 m, the average depth of the water section of 1.19 m with a maximum of 2.73 m [11]. The distribution of annual runoff in the seasonal water availability for different years in % is: middle water - 64 (spring), 6 (summer), 8 (autumn), 22 (winter); abounding - 49 (spring), 9 (summer), 13 (autumn), 29 (winter); low water - 79 (spring), 4 (summer), 6 (autumn), 11 (winter).

"Middle Pripyat" is characterized by a broad swampy flood plain in pristine condition. The spring flood on the "Middle Pripyat" and its tributaries lasts 3.5-4 months, and on small rivers – 40-45 days[4]. The width of the river from 4 to 14 km. The bed of the river is very winding with multiple arms and a lot of pages on the floodplain. The biggest tortuosity (kinky) is notes between the village Stakhovo and the city of Turov. At the confluence of the rivers Gorin, Styr and Yaselda the floodplain of Pripyat is widens considerably. In addition to these rivers, into Pripyat flows many small rivers and streams. Drainage reclamation of land is small. The largest number of observations is observed in the monitoring station Mozyr. In the catchment area of 101000 km², the average long-term conductivity of Pripyat is 390 m³/s or 12.3 km³/year. The maximum annual water flow of 725 m³/s was observed in 1998, the minimum – 142 m³/s in 1954.

"Floodplain of river Stokhid" has two types of power supply: external by snow and rainfall and internal – perched and formation waters. Both play almost the same role. Valley of river in the relief hardly expressed. Floodplain of river hardly changed. River is interlaced by streams, which barely noticeable movement of the water. Since the village Vugly up to the village Chersk the floodplain width is 0.4 km. The plot below village Chersk characterized by the function, the length of which is 30 km away. From the village Olenino up to village Sedlische river Stokhid forms two water flow up to 15 km in length that operate in the weave mode.

From the village Sedlische to Lyubeshov river Stokhid has a width of 75-100 meters of the river valley. At the confluence of the river Pripyat Stokhid is divided into two streams and forms a powerful floodplain with width 4.0 km. At monitoring station of Lyubeshov slope of the river is 0.4 ‰, the catchment area of 2970 km², catchment width 17 km, the average height of 180 m. Catchment water consumption on monitoring stations is on average 11.8 m³/s, maximum – 227 m³/s (27.03.1979), minimum – 0.28 m³/s (1963). The spring flood flooding large areas, especially in the confluence of Pripyat, and will coincide with this river. Floodplain and banks are wetlands. Marshes are mainly lowland [5]. Spring floods are usually small, not seen in some years. Significant rainfall in the June-July summer break the low-water period. Certain influence on the annual flow of Stokhid has Dnipro-Bug Canal. This explains the small water content of the post Lyubyaz.

"Olmanski swamp" located in the area between the right tributary of river Pripyat – the river Stviga and river Lev, which flows into the river Stviga. Into river Stviga flow some old drainage canals built in the early twentieth century. Floodplain of river Lev within the reserve is swamped. In the middle of the complex there are located two lakes – Big and Small Zasominnoe, a total area of 100 hectares. The remaining 23 lakes very small – from 0.5 to 5.0 hectares.

In general, it should be noted that the drainage reclamation tends to equalize the intra-flow distribution.

Marshes of Ramsar site “Floodplain of the river Pripyat”, “Middle Pripyat”, “Floodplain of the river Stokhid”, “Olmanski swamps”. “Floodplain of river Pripyat” is marked by predominance of fens. Among them distinguish the floodplain, valley of terrace and swamps closed depressions. Analysis of topographic maps of 1911, 1931-33, 1975 and 2008 indicates a sharp decrease in the area of wetlands. The main reason - the economic activity, in particular, land reclamation. In the Quaternary deposits map marked sites where elevated Cretaceous sediments accompanied by a decrease in capacity of Quaternary sediments [15]. Power latter in such cases, is 0-10 m, 10-20 m, sometimes up to 30 m. Swamps are usually confined to concepts such as large power Quaternary deposits, "mudding zone" and modern flat terrain contribute to soil drainage and formation waters. Large areas of the marshes, not affected by land reclamation, are in the east, in particular within the National Park "Pripyat-Stokhid". Much of the past bogs of Pripyat basin and its tributary confirmed spread of peat, peat bog, peat-bog soils and sands containing peat.

Ramsar sites "Middle Pripyat" have the status of a wetland of international importance. This is a unique floodplain system is 120 km in length and in width from 4 to 14 km. It is one of Europe's largest areas of floodplain, preserved in a natural pristine state to the present day. Here are preserved typical fens, unique ecosystems, which in Europe are threatened with extinction. Especially large tracts of lowland bogs are located at the mouths of tributaries Pripyat-Yaselda and Styr[13].

"Floodplain of river Stokhid" also marked by significant bogs – 7400 hectares. Waterlogged is 11 % [2]. Dominated fens, and only on the terrace above the floodplain, there are small areas of transition and bogs. The largest marsh areas are taking place in an area where Stokhid flows into the Pripyat. They hardly touched the reclamation.

“Olmanski swamp” are characterized by the fact that 40 % of the territory occupied by the open marshes, mostly lowland, transitional, covered with moss and rare birches. Swampy forests covered about 50 % of Ramsar sites. The largest are the swamps and red halo [4]. "Olmanski swamp" - is a unique and one of the largest in Europe, benchmark natural forest wetland complex has been preserved in slabonarushennom condition due to the long existence of the military range. These marshes are a natural mosaic of upland, lowland, transitional and lowland bogs. They do not have analogues in European region.

Birds of wetlands Ramsar sites of “Floodplain of river Pripyat”, “Middle Pripyat”, “Floodplain of river Stokhid”, “Olmanski swamps” are important for the protection of wetland ecosystems, particularly as a nesting place and stay during the flight of a large number of wetland and riparian bird species [2; 8]. Through these wetlands runs the largest – Poleski Flyway, the central axis of which is the floodplain of river Pripyat. Numerous islands are inaccessible to humans, with abundant grass shoots, create good conditions for rest and feeding birds. Most of them in spring migrated throughout Polesye way from the south to the east.

Wetland of "Floodplain of river Pripyat" has a diverse and rich wildlife of wetlands. There are found gray heron, mallard, marsh harrier, moorhen, warbler large, gray goose, gull, small diver and others. In this area, found 84 species listed in the Red Book of Ukraine, including 21 species of birds [2; 6]: the black stork *Ciconia nigra*, Red-breasted Goose *Branta ruficollis*, goldeneye *Bucephala clangula*, osprey *Pandion haliaetus*, field harrier *Circus cyaneus*, red kite *Milvus milvus*, serpent eagle *Circaetus gallicus*, booted eagle *Aquila pennata*, lesser spotted eagle *Aquila pomarina*, golden eagle *Aquila chrysaetos*, white-tailed eagle *Haliaeetus albicilla*, capercaillie *Tetrao urogallus*, gray crane *Grus grus*, oystercatcher *Haematopus ostralegus*, marsh sandpiper *Tringa stagnatilis*, curlew *Numenius arquata*, caspian tern *Hydroprogne caspia*, eagle owl *Bubo bubo*, grey shrike *Lanius excubitor*, aquatic warbler *Acrocephalus paludicola*. Land territory – is the only place in Ukraine nesting white tits *Cyanistes cyanus*. It found 49 species of birds that are protected under the "Agreement on the Conservation of African-Eurasian Migratory Waterbirds." The territory of the land is the site of mass seasonal bird migrations (120-150 thousand individuals).

"Middle Pripyat" – Europe's largest floodplain land, preserved in a natural pristine state. It is a key ornithological territory. Here are concentrated all the typical Polesie and rare in Belarus and Europe habitats - ripe floodplain oak forests, fens, diverse meadows, wetlands[1]. As part of the avifauna recorded 182 species of birds [8; 12-14]. Floodplain "Middle Pripyat" has an international importance for the conservation of populations of a number of rare and endangered European fauna species: ferruginous duck, greater spotted eagle, corncrake, snipe, aquatic warbler, the black stork, bean goose, white-fronted goose, communication, gray duck, black tern, owl, short-eared owl, crake, tawny owl, and so on. During the spring migration of wetland bird species number of migratory geese along the Pripyat river is about 50 thousand individuals.

"Floodplain of river Stokhid". There are 140 species of birds, of which the Red Book of Ukraine entered the black stork *Ciconia nigra*, harrier field *Circus cyaneus*, lesser spotted eagle *Aquila pomarina*, serpent eagle *Circaetus gallicus*, white-tailed eagle *Haliaeetus albicilla*, curlew high *Numenius arquata*, eagle owl *Bubo bubo*, shrike Grey *Lanius excubitor*, aquatic warbler *Acrocephalus paludicola*. Views from the European Red List: corncrake *Crex crex*, white-tailed eagle, the aquatic warbler [2; 5]. Among the birds nesting in the territory of land, are most noticeable bull *Botaurus stellaris* (40-50 pairs), gray heron *Ardea cinerea* (30-40 pairs), mallard *Anas platyrhynchos* (700-800 pairs), shoveler *A. clypeata* (30-50 pairs), garganey big *A. querquedula* (100-150 pairs), driver *Rorzana porzana* (500-600 pairs), coot *Fulica atra* (500-800 pairs), gull *Vanellus vanellus* (150-200 pairs), redshank *Tringa totanus* (60-100 pairs), snipe *Gallinago gallinago* (80-120 pairs) aquatic warbler *Acrocephalus paludicola* (50-60 pairs). The total number of birds nesting is 5-8 thousand. During migration moulting grounds visited by more than 50 thousand individuals. In the migration period there are numerous goose (5-10 thous. individuals), duck of the genus *Anas* (10-12 thousand ind.), ducks of the genus *Aythya* (3-5 thousand ind.), coots (5-7 thousand ind.), drovers (1300-2000), gray crane (600-1000 ind.), terns *Sterna and chlidonias* (1000-1500 a), gulls (1000-1500), herbalists (800-1000 ind.), ruff *Phylomachus pugnax* (1-2 thousand ind.), godwits *Limosa limosa* (500-1000 ind.), swallows (10-12 thousand ind.) and others.

"Olmanski swamps" – Europe's largest complex of upland, transitional and lowland bogs, preserved to this day in its natural state [4; 8]. The fauna of swamps represented 151 species of birds, 25 of them listed in the Red Book of Belarus. Olmanskie swamp ensure the existence of a significant part (10-20%) of the Belarusian population of Great Grey Owl nests here and ordinary capercaillie *Tetrao urogallus*, the size of which is extremely small.

In general, described four Ramsar sites of Pripyat basin are liveing 223 bird species, among which 33 species are found in the bay and 7 species are found during the annual mass migration and can hibernate. In particular: black-throated diver *Gavia arctica*, rough-legged Buzzard and rough-legged Buzzard *Buteo lagopus*, jackdaw *Corvus monedula*, waxwing *Bombycilla garrulous*, goldcrest *Regulus regulus*, siskin *Carduelis spinus*, common redpoll *Acanthis flammea*. During migration through land described flies more than 150000 birds. The most numerous are the geese genus *Anser* (20000-40000 ind.), duck genera *Anas* and *Aythya* (12000-18000), coot *Fulica atra* (5000-7000), an ordinary crake *Porzana porzana* (300-500), gray crane *Grus grus* (300 -1000 ind.), terns *Chlidonias childbirth and Sterna* (10000-30000), common gull *Larus ridibundus* (3000-5000), lapwing *Vanellus vanellus* (1000-1500), redshank *Tringa totanus* (500-1000), ruff *Rhvtotachus pugnax* (5000 -7000), sandpipers genus *Calidris* (300-1000), the swallow family *Hirundinidae* (10000-15000) and some others.

With places of wintering birds begin to return very soon, when the ice from the water bodies has not yet descended, and the meadow is almost completely covered with snow (lapwing, geese). After opening the ice lakes and rivers arrives wigeon. In general, the spring migration of waterfowl in Polesie begins in late February - early March, actively continues in the second decade of March (pintail, etc.). In some places, especially in late spring, the appearance of the first birds may be delayed until late March - early April. As a rule, the beginning of the arrival of birds occur in the first half of March (gray goose) and continues until the middle of May (swallow, sand artin). Migrations take place around the clock. Beginning autumn migration is associated with the time of raising young birds on the wing, in general, it coincides with the end of August - early September. Ends autumn migration to the freezing of fresh inland waters (late October-November). Autumn migration of waterbirds on the grounds described weak. This is evidenced by less than the total number registered in the spring of waterbirds in all observation points. Most species of ducks and shorebirds migrate in the fall at night and migration have greatly stretched.

In the described four Ramsar sites has an extensive food web, which is based on phytoplankton and zooplankton consumed by mollusks, insect larvae, tadpoles, fish fry. These in turn become food for larger fish and fish-eating birds, and that the organisms in turn become prey for predators, such as encountered in flight peregrine falcon *Falco peregrinus*, red-footed falcon *Falco vespertinus* and common kestrel *Falco tinnunculus*. Among the migratory birds there are fish-eating (loons, cormorants), herbivores (geese, ducks) feeding on seeds and fruits (nutcracker, waxwing), insectivores (swallows, swifts), carnivores (gulls, stone curlew), feeding predominantly or exclusively small invertebrates - insects and their larvae, crustaceans, worms, mollusks and spiders (grebes, sandpipers, snipes, wagtail, grey plover). During migration to areas described in the Pripyat river basin birds are finding a variety of feed required, as the region's food supply diverse and relatively stable.

Characterize biogenic and abiotic features of the four areas of wetlands protected by the Ramsar Convention, there is sufficient to carry out research on the life support of migratory birds.

Conclusions and prospects for further research

1. Valley of the river Pripyat is one of the most important in continental Europe way of migratory birds. The total area of Ramsar sites "Floodplain of the river Pripyat", "Middle Pripyat", "Floodplain of the river Stokhid", "Olmanski swamps" reached 206.7 thousand hectares. They have a significant impact on life up to 150 thousand species of migratory birds that requires special attention not only from the administrative and public organizations, and experts of relevant structures for monitoring an environmental conditions of the birds and determine the most important preventive measures to preserve their integrity, because these lands have not only European, but also global significance.

2. Climate of investigated Ramsar areas is continental with prolonged spring and autumn. Warming mainly occurs in March, temperature rapidly increases until May, when there is complete melting of snow and ice on the rivers and lakes. All this contributes to the necessary conditions for the life of migratory birds.

3. Described Ramsar sites are located within the basin of the river Pripyat with extensive dense grid at low sloping channels (0,05-0,1 ‰), which defines a small flow rate (up to 0.4 m/s). River valleys are marked by broad floodplains (4-14 km). The duration of spring flood traced from 1.5-2.0 ("Floodplain Stokhid") to 3.5-4.0 months ("Middle Pripyat"). The lakes are small, there are two major "Olmanski swamps with a total area of 100 hectares.

4. There are significant development of waterlogging processes. The large area covered with marshes (30-45 %) and swampy forests (30-55 %) – "Olmanski swamps" and "Middle Pripyat"; lowest rate waterlogging (11 %) recorded in the land "Floodplain of the river Stokhid". There are several key factors that contribute to the process of waterlogging, excessive moisture ($K \geq 1,05-1,15$); flat terrain, which causes flooding and flood duration and increases the level of groundwater and perched stocks; vertical flow of artesian water in the soil reaches 65-70 cm/year, and the land territory "Olmanski swamps" the dominant factor is the reduction of groundwater infiltration of local water-impermeable layer of Quaternary sediments.

5. The least human impact on land landscapes is observed on "Middle Pripyat" and "Olmanski swamps". Some threat for described Ramsar areas have increasing the share of the regulated area of economic and recreational activity that can be traced at the objects Volyn (expanding recreational activities) and Brest regions (the main expansion area and local forestry sanitary cutting).

6. In the described areas are living and migrate during the flight 223 species of birds, including 33 registered during the flight and 7 species found during the annual mass migration and can hibernate. During migration through the land flies more than 150 000 birds. The region formed developed trophic network that provides nutritional needs for ichthyophagous, herbivorous, insectivorous, carnivorous, those that eat seeds and fruits and small invertebrates birds. During the flight birds can find the variety of feed, forage base of the area is diverse and relatively stable.

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