OVERVIEW OF THE CURRENT STATE AMPHIBIOUS AND REPTILIAN FAUNA OF THE WESTERN DIVISION

Abstract. The article highlights the current state of the amphibian and reptile fauna of Western Podillia, their distribution and abundance in the region.

12 species of amphibians and one hybrid form (Pelophylax esculentus - ridibundus), as well as 9 species of reptiles. Proven to appear a regionally new species of yellow-bellied kumka, which is a consequence constantly active downstream invasions Dniester.

For the first time for Podillia received information about the structure of hybrids populations green frogs, it was established that they are characterized by diploid bisexual structure of hybrids. Within the faunistic limits morphometric and morphological essays are described signs, distribution and number are given species, considered biotope distribution and autologous features. It has been proven that a complex of reptiles and amphibians Western Podillia historically is formed at the expense of Western Palearctic species, the majority whose have clear Mediterranean origin, on the background limited impact transpalearctic and full absence species Central Asian origin.

Keywords: amphibians, reptiles, morphometry, distribution, number, ecological features, Western Podillia.

Formulation of the problem. Faunal research is the basis of zoological science. Reliable information about the species composition, lifestyle, number, distribution, reproduction features are not only the initial data for further zoological, evolutionary and ecological research, but also form the basis of environmental
protection activities, which are based on the analysis of the state of the animal world's resources. Traditionally, significant attention in the study of fauna is paid to vertebrates, which, due to their comprehensive study and availability for observation, more often than other groups of animals become model objects of zoogeographical, autecological, ethological, population-biological studies, it is representatives of this subtype that usually form the majority of nature conservation lists.

A separate direction of faunal studies of vertebrates traditionally consists of studies of amphibians and reptiles, which in ecosystems take the place of consumers of the second, rarely third orders and, despite the fact that these representatives of different classes have significant differences in the way of life and types of development, are the objects of research of the same science - herpetology in the broad sense. The vulnerability of amphibians and reptiles in modern environmental conditions is widely reflected in various conservation lists. Thus, according to the Berne Convention, all European reptiles and amphibians belong to the categories of species subject to ordinary or special protection, they are included in the IUCN Red List, widely represented in the third edition of the Red Book of Ukraine, which includes 8 out of 20 amphibians and 11 out of 22 reptile fauna of Ukraine. Obviously, this aspect alone makes faunistic studies of representatives of these two classes quite relevant.

Research analysis. Many zoologists studied the batrachofauna of the western region of Ukraine [1, 4–7, 9, 10, 12]. These research concerned only certain him parts, mainly Carpathian region, at the same time Western Podillia was never singled out and was not specifically considered. Western at this time Podillia is one of them least studied in herpetology relationship regions of Ukraine, although the complex of natural and geographical characteristics forms enough favorable conditions for amphibians and reptiles, which most often confined to floodplains ecosystems.

The purpose of the article is to highlight the current state of the fauna and populations of amphibians and reptiles of Western Podillia.

Presenting main material. The basis of the work is the results of field research conducted during the period of seasonal activity of the species and supplemented by data from literary sources.

As a result of the research, 12 species of amphibians and one hybrid form (*Pelophylax esculentus – ridibundus*), belonging to two orders and 6 families. Two species from the Salamandridae family belong to Caudata, and 10 species and one hybrid biotype belonging to 5 families belong to Anura.

Common newt - *Lissotriton vulgaris* (L., 1758). It is widespread in the studied region in suitable stations. It is more common in the forest-steppe part than in open areas. The finds are mainly confined to forest areas and water bodies. Absent in agrocenoses, on the open hilly slopes of the Tovtro ridge within the borders of the
Khmelnyskyy and Ternopil regions. The abundance of the species is maximum in the valleys of the rivers Strypa, Seret, Nichlava, Smotrycha, as well as small lakes and overgrown ponds. From 11 to 25 people/100 m of the route can be found here. A decrease in density to 1-6 individuals/100 m is observed in open landscapes with small water bodies. In the conditions of Western Podillia during the breeding season of newts in create clusters from 17 to 23 individuals/100 m of coastline. The population density in the region is 10.4 inhabitants/100 m.

**Crested newt - Triturus cristatus** (L., 1768). The distribution of the species is almost uniform with areas of increased abundance in the direction of the southeast. Population density in the study region is 1.1-5.5 individuals/100 m in broadleaf forests and up to 11 individuals/100 m floodplain thickets and muddy meadows. A low number was noted in approx. Zboriv, Kozovy, Zbarazh (1.1 inhabitants/100 m), however, there are places where its number is higher. The highest population density is observed in Buchachsky, Zalishchysky, Kamianets-Podilskyi districts. Newts are practically absent in forest strips, artificial tree plantations and agrocenoses. During the reproduction period, it is most often concentrated in natural ponds, which are shallow water bodies formed in the floodplains of rivers (Strypy, Seretu, Nichlavy, Zbrucha). The density here is 4-7, in places up to 11 persons/100 m of coastline. The total population density is 4.7 inhabitants/100 m of the route.

**Kumka red-bellied - Bombina bombina** (L., 1761). Found in all administrative districts of the region. It is one of the most numerous species of amphibians in Western Podillia. The species is not found in meadows, forest biotopes and urbocenoses.

The number in the conditions of Western Podillia ranges from low (2-3 persons/100 m) in urbanized areas, in puddles, waterlogged places to very high (31 persons/100 m) in open, well-warmed overgrown water bodies.

The number of the species in the region, as well as in Ukraine in general, is quite high, without a tendency to decrease. No special protective measures are required.

**Yellow-bellied hummingbird - Bombina variegata** (L., 1758). This species is invasive in the region. Its appearance is caused by floods on the Dniester and its tributaries, when individual individuals are carried away by the current from the Carpathians. That is why on the territory of Western Podillia it was found only in Western Podillia Transnistria, which is obviously the northeastern limit of the distribution of the species.

Occurs sporadically and in small quantities. The distribution of the number of species in the region is uneven. The highest density in typical biotopes is 2-3 individuals/100 m.

**Common garlic - Pelobates fuscus** (L., 1768). Common garlic is found sporadically and in small quantities in the study area. Dedicated to agrocenoses, small forest islands with adjacent water bodies.
The number of species varies greatly depending on the season, year and nature of the biotope. Based on the results of the survey, it was established that the density of settlements in the study area during the breeding season is 7-14 persons/100 m. coastline.

**Gray toad** - *Bufo bufo* (L., 1758). Occurs sporadically. However, it is noted in all four physiographic districts of Western Podillia. For the most part, the species is listed in forest biocenoses, and is also closely related to settlements, inhabiting homesteads.

It reaches the highest density (up to 11 individuals/100 m of coastline) during the breeding season.

**Green toad** - *Bufo viridis* (L., 1768). In the study region, the species occurs unevenly throughout the territory. Several centers of concentration of the species can be identified: in the Lviv region – the Voronyak massif (surroundings of the villages of Pidliptsi, Podkamin and Voronyak), where the density of the species is 5-9 individuals/100 m of coastline; in Zahidno-Podilskyi Transnistria, the centers of increased abundance of the species are Buchatskyi, Borschchivskyi and Kamianets-Podilskyi districts, where the number is 5-7 individuals/100 m; in the "Medobory" nature reserve (Krasne and Krutyliv villages of the Husyatynskyi district) the density reaches 4-6 inhabitants/100 m of coastline. The density of settlements in the Terebovlyanskyi district is the lowest - 0.9-4.5 inhabitants/100 m. The density of the species is 4.3 inhabitants/100 m and is much lower compared to other data for Ukraine [2, 3, 9].

In the spring, it appears in reservoirs at the same time as the gray toad.

**Common quack** - *Hyla arborea* (L., 1758). A widespread and numerous species in the region. Found in all physiographic regions of Western Podillia. The species reaches its highest density (11-17 individuals/100 m) in the spring period in reservoirs of Zolochiv and Brodiv districts of Lviv region, Kamianets-Podilskyi district of Khmelnytskyi region, Borschchivskyi, Husyatynskyi, Chortkivskyi, Buchaskyi, Terebovlyanskyi districts of Ternopil region. The lowest number of species (1.7 individuals/100 m) is observed in Kosovsky and Zborivskyi districts of Ternopil region, which is obviously due to the absence of the most typical biotopes and the presence of meadows and pastures, where the species was almost never found. The density of settlements in the region is 8.1 persons/100 m.

**Green frogs** – *Pelophylax esculentus* (Linnaeus, 1758) complex.

According to the results of biochemical gene marking, carried out on a set of biochemical loci of individuals of green frogs, the presence of three forms of green frogs in the region was established: two parent species of the lake *P. ridibundus* and pond *P. esculentus* frogs, as well as quite numerous hybrids of *P. esculentus × P. ridibundus*.

**Lake frog** - *Pelophylax ridibundus* (Pallas, 1771). Widespread in all rivers and large reservoirs of Western Podillia. It is the dominant species of amphibians of
the studied area. The highest number is in Zborivskyi, Kozovskyi districts of Ternopil region, and Zolochiv District, Lviv Region. The population density of the species is 13.0 individuals/100 m and is the highest among amphibians in the region without a tendency to decline. It is noted in Terebovlyanskyi, Chortkivskyi, Husyatynskyi, and Borschivskyi districts, where the density of settlements is 23-32 inhabitants/100 m of coastline. The least numerous lake frog is 4-9 individuals/100 m in the Zbaraz district.

**Pond frog** - *Pelophylax esculentus* (L. 1758) (= lessonae). The distribution of this species in the study area is uneven. Centers of increased population: "Medobory" reserve (reservoirs of the Viknyan Forestry) and Western Podilsk Transnistria (surroundings of the village of Beremyany), where the density of spawning clusters in the spring period is 7-9 individuals/100 m of coastline. The number of the species is somewhat lower in the Kamianets-Podilsky district (3-4.5 individuals/100 m). For reservoirs of Zborivskyi and Borschivskyi districts, the density of pond frogs is 1-2 individuals/100 m. In the study region as a whole, it is 2.56 individuals/100 m of coastline, which is significantly less than the number of the species in adjacent territories [1, 5, 7].

**Allodiploid hybrids** *Pelophylax ridibundus – esculentus*. Met only in reservoirs. They have a mosaic nature of distribution. The highest density in Borschiv district is 6-8 inhabitants/100 m of coastline. From the sample (n = 17) of green frogs in this area, hybrids make up 52.9%. Population indicators in settlements in Zborivskyi district turned out to be somewhat smaller - 4-6 inhabitants/100 m, in the sample (n = 23), their share was 34.8%. For Terebovlyanskyi and Buchatskyi districts, the density is even lower - 2-3 inhabitants/100 m. It is the lowest (0.8 inhabitants/100 m) in Chortkivskyi and Husyatinskyi districts, where hybrids make up about 6.2% of the total sample of green frogs. The density in settlements is 3.52 persons/100 m.

**Sharp-nosed frog** - *Rana arvalis* Nilsson, 1842. Uneven distribution in the study area. During the breeding season, it is concentrated in water bodies of various types, where the population density is higher compared to terrestrial biotopes. The highest density is in the Husyatinsky (within the "Medobory" nature reserve) and Borschivskyi districts - 11-14 inhabitants/100 m. For the populations of Chortkivskyi, Buchatskyi and Zolochivskyi districts, it varies between 8-10 inhabitants/100 m. It is lower in Kamianets-Podilsky and Brodivskyi districts, where it is 5-7 persons/100 m. The smallest number of individuals was noted in the Zbaraz district - 1.4-2 individuals/100 m. The density of the species' settlements is 5.42 individuals/100 m.

The beginning of seasonal activity falls on the first decade of April, sometimes it is observed at the end of March. In the first half of September, individuals are already concentrated in wintering places.
Grass frog - *Rana temporaria* (L., 1758). It was found in Kamianets-Podilskyi district of Khmelnytskyi region, Borshchivskyi, Buchachskyi, Husyatynskyi, Zalishchytksyi and Zbarazskyi districts of Ternopil region, and Brodivskyi and Zolochivskyi districts of the Lviv region. Population density is uneven: its indicators are much higher in the southeastern and northern parts of the region. The species is most abundant in the Brodiv district, where the population density is 12-13 individuals/100 m. In the Borshchiv and Kamianets-Podilskyi districts, it is 6.5-13 individuals/100 m. For the Zalishchytksyi and Husyatynskyi districts - the density is 6.5-8 individuals/100 m. The lowest number of 1.3-4 individuals/100 m was recorded in the Buchach district. In settlements, the density of the grass frog is 5.7 individuals/100 m.

As a result of faunal studies of reptiles of Western Podillia, 9 species of reptiles belonging to 2 orders and 5 families were found. The Order of Turtles (*Testudines*) includes 1 species, the Order of Scales (*Squamata*) includes 8 species, 5 of which are representatives of the suborder of Snakes (*Serpentes*) and 4 of the suborder of Lizards (*Lacertilia*).

Bog turtle - *Emys orbicularis* (L., 1758). Occurs mosaic throughout the Western Divide. The maximum length of the carapace in males reaches 16.9 cm, in females - 23.5 cm, which do not differ from turtles from the Carpathian region by this feature (Shcherbak, Shcherban, 1980). The western Podil populations are characterized by the radiating (68.3%) and dotted (31.7%) carapace types. Thus, the terrapin from Western Podillia does not differ from individuals of populations of other regions (except Crimean populations), which indicates that it belongs to the nominative subspecies *E. o. orbicularis*. Out of 21 examined individuals, 47.6% were females.

The highest population density is concentrated in Western Podilskyi Transnistria, where 2-4 inhabitants/km are found. Found in the coastal zone of the rivers Stryya, Seret, Hnizna, Tupa, Zbrucha, ponds and lakes, where its density is 1-3 individuals/km. Absent in the "Medobory" nature reserve. According to the population counts in the studied area, *E. orbicularis* is generally a small species (1.9 individuals/km). Considering the low density in the region, as well as the tendency to reduce the number of the species in Ukraine, it is advisable to take special protective measures for its preservation.

The spindle is fragile – *Anguis fragilis* (L., 1758). It is widespread throughout the territory, but it is found sporadically everywhere. The population density in the Dniester Canyon (on the stretch from the Stryya River to the city of Kamianets-Podilskyi was 5-6 persons/km, in the central part of the Ternopil Plain - 1-2 persons/km. The highest population is observed in Kam' in the Yanets-Podilskyi district - 6 individuals/km. The number of the species is somewhat lower in the Husyatinskyi, Buchachskyi and Zolochiv districts - 3-4 individuals/km. The number is the smallest in the Terebovlyanskyi district and Brodivskyi districts -
0.6 inhabitants/km The density of the species within Western Podillia is 2.41 inhabitants/km of the route.

   The percentage of females in the studied sample (n = 27) was 35.7%.

   **Green lizard - Lacerta viridis** (L., 1758). Within the boundaries of Western Podillia, this species, which is listed in the Red Book, was found exclusively in the area of Western Podillia Transnistria along the Dniester valley and its tributaries. The biotopes it inhabits can be grouped into three main types: 1) slopes of hills and streams with dense grass and hawthorn and rose bushes (density of settlements 30-50 inhabitants/km); 2) areas associated with broad-leaved and mixed forests - forest clearings, forest edges, forest roads (20-50 persons/km); 3) steep slopes of ravines, coastal cliffs with limestone outcrops with herbaceous and shrubby vegetation (6-11 inhabitants/km).

   **Pond lizard - Lacerta agilis** (L., 1758). It is the dominant species of reptiles of Western Podillia. It is noted in all physical and geographical areas of the region as a numerous and widespread species.

   A high density of settlements is noted in Tovtrovo ridges, where an average of 36.0 persons/km occurs. The maximum level of population is established in the "Medobory" nature reserve (outskirts of Ostapye village). The number of the species here was 125 individuals/km. The density of settlements in Western-Podilsky Transnistria is somewhat lower - 31.8 inhabitants/km of the route. In the Voronyak massif - 24.7 inhabitants/km. It is the smallest in the Ternopil plain - 12.4 inhabitants/km. The density of settlements in the region is 19.2 inhabitants/km. The pond lizard is a numerous species not only in the studied territory, but also in other regions of Ukraine [1-4, 6].

   **A viviparous lizard** - *Zootoca vivipara* (Jacquin, 1787). According to research results, the distribution of the species has an island character. It is found in the northern, central and partly in the southeastern part of the studied territory. The density of settlements in places of distribution fluctuates significantly. A low rate of 1-2 persons/km is established in the vicinity of Kamianets-Podilskyi, a little higher in Borschchiv and Zboriv districts - 2-3 persons/km, a moderate 4-5 persons/km in the Voronyak massif, the highest in Zolochiv, Kozovsky and Terebovlyansky districts - 5 inhabitants/km. The number of the species is the lowest in Zbaraz and Buchach districts - 1 person/km. The density of settlements in the region is 2.75 inhabitants/km of the route.

   The percentage of females in the sample (n = 25) was 56.0%.

   **The usual snake** is *Natrix natrix* (L., 1758). Found in all physiographic regions. According to the results of research, it is a numerous and widespread species, the density of settlements of which varies within fairly wide limits. For example, in the meadows of the deciduous forests of the "Medobory" reserve, 1-2 individuals/km were found, while along the left tributaries of the Dniester in the stretch of Stripa - Zbruch, the density was 20-23 individuals/km.
Females made up (n = 56) 58.9% of the sample.

**Water snake - Natrix tessellata** (L., 1758). Widespread in the "Dniester Canyon" and in some places of the Ternopil Plain, rising along the Seret and Zbruch rivers. It is found exclusively in the coastal zone.

In the lower reaches of the rivers Strypa, Koropets, Seret, and Zbruch, the population is quite significant - 15-18, in some places up to 26 inhabitants/km. The northernmost points of finds of this species in Western Podil are the outskirts of the cities of Terebovlia - 2 individuals/km, and Skala-Podilska 5-6 individuals/km. The settlements of the species are very dynamic, and therefore, not only the density of settlements can change significantly over the years, but also the species can be absent in those places where it was met before, or appear in new ones. Within the studied region, as well as in the adjacent territories in general, it has a significant number without a tendency to decline. The density of the species in places of settlements is 10.0 inhabitants/km. The gender structure of the population (n = 63) tends towards a shortage of females (38.1%).

**Common copperhead - Coronella austriaca** (L., 1758). It is a rare species that occurs sporadically in the territory of the studied region. Found in three physiographic regions of the region: Voronyak massif, Tovtrovy ridge, Zahidno-Podilskyi Transnistria. In the "Dniester Canyon" on the "Chervonaya Gora" in the vicinity of the village of Beremyany, the density was 1 person/km, on the outskirts of the village in Kasperivka, it was 0.5-1 person/km in shrub thickets. In the Voronyak massif (Zolochiv district), 1-2 individuals were encountered during one excursion. In the "Medobory" nature reserve, the forest-steppe areas also have a density of 1-2 people/km. The total abundance of the species within the region is very low. In the studied sample (n = 10), 70.0% were females.

**Common viper - Vipera berus** (L., 1758). In the study region, it was found in Western Podilskyi Transnistria and in Podilskyi Tovtry. The spread is mosaic in nature. The nominative subspecies V. b is common in the Western Podilska region. berus No melanists were found.

The highest population density is in Tovtrovo ridges ("Medobory" nature reserve), where 2-3 individuals are found per km of the route. In Zahidno-Podilskyi Transnistria, on the Kasperivtsi-Ustechko-Beremyan section, there are 1-2 persons/km. The characteristic biotopes of the species in this region are canyon-like valleys, forest glades, forest edges and rocky slopes covered with loess loams with outcrops of reef limestones, in the middle of barberry bushes and turf. The density of the species even in the places of finds is quite low - 1.5 individuals/km.

The sporadic distribution, as well as the low number of the species in this area, allows us to conclude that in the conditions of Western Podillia, this snake needs protection.

**Conclusions.** The modern batracho-herpetofauna of Western Podillia includes 12 species of amphibians and a hybrid form (Pelophylax esculentus-ridibundus), as well as 9 species of reptiles.
The number of amphibians in the region is much higher than the number of reptiles. The difference between them lies, first of all, in the greater density of settlements and to a lesser extent in the density of species by region, while the average occurrence of amphibians and reptiles by region probably does not differ. This means that amphibians form more aggregated settlements that are clearly domesticated to certain habitats, while reptiles are less ecologically demanding and more dispersed across the study region.

Western Podillia is a unique region where a complex of conditions is concentrated, thanks to which populations of species can stably exist and be numerous. It conditions necessity her additional research and security on biocenotic levels.

References: