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BIOTOPIC DISTRIBUTION OF SPIDER SPECIES (ARANEI, ARACHNIDA, ARTHROPODA) IN THE DNISTROV CANYON AND ADJACENT TERRITORIES

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Abstract. The ecological timing of the distribution of groups of spiders (Aranei, Arachnida, Arthropoda) in different phytocomplexes in the conditions of the Dniester Canyon and adjacent territories was studied. Species complexes of spiders of 6 families were studied: Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae. A total of 69 species of spiders from these six families have been identified. The groups of spiders of the following phytocomplexes, ecotones and biotopes were studied: A - forest edges of broad-leaved beech and hornbeam forests; B - steppe areas on the hills; C – rocky areas with petrophilic vegetation, including the edges of karst gypsum and limestone craters; D – stony placers with petrophilic vegetation; E – tree crowns of broad-leaved beech and hornbeam forests; F – shrubs (mainly hawthorn and thistle); G – forest litter of beech and hornbeam forest; H - dead dry wood; And - wet biotopes and ecotones, wetlands and riverbanks. The largest number of species was found in the grassy edge of beech and hornbeam forests (A) – 53. The fewest species of spiders were found on dead wood (H) – 2 species and on the banks of rivers and wetlands (I) – 6. In grassy steppes 40 species of spiders were found in areas (B), on rocky areas with petrophilic vegetation (C) – 16 species, on rocky outcrops with petrophilic vegetation (D) – 16 species, in tree crowns of beech and hornbeam forests (E) – 8 species , on shrubs (hawthorn, blackthorn) (F) – 9 species, on the forest floor of broad-leaved forests (G) – 10 species of spiders of the studied families. Only 1 species of spiders - *Xysticus bifasciatus* C. L. Koch, 1837 (Thomisidae, Aranei, Arachnida, Arthropoda) was found in all investigated phytocomplexes. 5 detected species of spiders were found only in one of the investigated phytocomplexes. Most of the detected species have camouflage coloration, which is associated with certain types of plants, including flowers, on which these species of spiders hunt. An areological analysis was carried out for all detected species, and the faunal affinity of the spider communities of the different studied phytocomplexes was investigated. No new species for the fauna of Ukraine were discovered.
Key words: Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae, fauna.

1. Introduction

The study of spiders (Aranei, Arachnida, Arthropoda) of the Dniester Canyon and the adjacent territories has a long history, on the one hand, the research begins with the works of Koch L. (1870), Wajgiel L. (1867) and Nowicki M. (1870) and ends with the works of Bublyk I. M. (1981), Woźny M. (1993), Hirnaya (2006) A. Ya., Prokopenko E. V. (2003), Fedoryak M. M. (2018), but on the other hand, the studies are fragmentary and extremely insufficient. This especially applies to the biotope distribution of spider species and their attachment to certain phytocomplexes. The evolution of spiders was also connected with the evolution of plants: many species of spiders imitate the color and morphology of plants on which oxen live - this is especially true of crab spiders (Thomisidae), which live on plant flowers and ambush their victims there. Spiders of other families often have a camouflage color depending on the plants or their remains among which they live and hunt. This work covers the spider families Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae. The study hospitals are located within the borders of the Ivano-Frankivsk region of Ukraine, on the territory of the Serhiy Didych Dniester regional landscape park and the Kozakova Dolyna nature reserve. The research area is a river canyon and the surrounding hills. On the territory there are numerous rock outcrops of different geological periods: Devonian (red sandstones), Jurassic, Cretaceous periods (limestones), Neogene (gypsums) with numerous craters, rocks, stone blocks and placers, karst, caves. Hills and rocks are covered with different types of vegetation: broad-leaved forests (beech and hornbeam forests), mixed forests, pine

forests with numerous forest edges, forest-steppe and steppe biotopes, riverside meadows. This creates a variety of living conditions for spiders and contributes to the high biodiversity of species complexes of spiders (Venhryniuk et al., 2023).

The biotope and ecological distribution of species complexes of spiders of 6 families: Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae was studied. Representatives of each of these families have their own characteristics of ecology, behavior, and adaptations. So, Jumping spiders (Salticidae) are the most numerous species of the family of a number of spiders (Aranei), do not build hunting nets, hunt their prey from an ambush, move and attack their prey by jumping. At the same time, the size of the victim is larger than the spider itself. During mating, they perform complex species-specific mating dances. To lay eggs, females make a complex nest consisting of a living chamber and a chamber for eggs.

Orb-weaver spiders (Araneidae) make a complex wheel-shaped hunting lace, consisting of a rectangular frame and radial threads diverging from the center. The number of radial threads (radii) and the very structure of the network differ in different species. They catch various flying insects with lace. Copulation is accompanied by complex mating behavior. In some species, sexual cannibalism occurs after copulation. To lay eggs, females make cocoons of various shapes and structures (Sirenko, 2024, Al-Khazali et al., 2023, Polchaninova et al., 2021).

Crab spiders (Thomisidae) do not build hunting nets, they hunt from an ambush, which is arranged on angiosperms, often on flowers, imitating the color of the flowers of specific types of plants, they attack various nectarophilic insects, or on herbaceous plants, imitating the color of green parts of plants, or on plant residues, having the appropriate masking color. Females build a variety of species-specific nests and cocoons to lay eggs. Many species of spiders of this family occupy very specific ecological niches. So, for example, the species *Psammitis sabulosus* (Hahn, 1832) = *Xysticus sabulosus* (Hahn, 1832) lives only on lichens of the genus Cladonia or on low grass in open and very dry areas of the forest, and the species *Ozyptila horticola* (C. L. Koch, 1837) (= *Ozyptila atomaria* (Panzer, 1801)) – under stones on the sands of pine forests. Species of the genus Aphantochilus mimic the Cephalotes ants they prey on (Sirenko, 2024, Nentwig et al., 2023).

Daddy long-legs spiders (Pholcidae) make peculiar hunting webs, consisting of a dense roof-like web with upper and lower attachment threads that stretch these webs in general. Sometimes spiders make a thick round dome that hangs on threads and turns the depth down. In both cases, the spider sits in the center of the web, waiting for prey - various Diptera, primarily from the Culicidae family. In addition, these spiders attack spiders of other families, imitating prey or attack the cocoons of spiders of other families and feed on their eggs. Before copulation, the male fills the copulatory apparatus with sperm with the help of chelicerae, between which a drop of sperm is placed. The palps alternately dip into this drop. During copulation, both embolus are injected simultaneously into the epigyne of the female. The cocoon of spiders of the Pholcidae family consists of a small number of web threads enveloping the eggs. The female constantly wears a cocoon in chelicerae (Sirenko, 2024, Huber et al., 2021, Huber et al., 2023).

Web weavers spiders (Dictynidae) make irregular webs of webs on or near the ground or on the leaves of trees, creating a ball of silk fibers among several branches or stems of the same plant, make small hunting webs that are connected to the spider's den with signal threads. They prey on small Diptera and Homoptera (Hexapoda). Mating takes place in spring or early summer, occasionally in autumn. Males die after copulation. Females lay eggs and make a cocoon. The cocoon of spiders of this family is lenticular, white, with a small number of eggs (from 7 to 35) (Sirenko, 2024, Nentwig et al., 2023).

Wolf spiders (Lycosidae) do not make hunting nets, wander in search of prey, live alone, chase prey, or lie in wait for prey near a burrow. They occupy various ecological niches. Among the spiders of this family there are hydrophilic and hydrobiont species. Males mostly die after copulation. Females make a cocoon that they constantly carry with them while continuing to hunt. After hatching from the eggs of small spiders, females continue to carry them on themselves, showing care for the offspring (Sirenko, 2024,, Al-Yacoub et al., 2023, Vrenozi et al., 2023).

2. Materials and methods

The collection of collection material was carried out in the Dniester Canyon and in the adjacent territories on the lands of the Dniester Regional Landscape Park named after Serhiy Didych and the Kozakova Dolyna nature reserve. Own fees and fees of various collectors from 2002 to 2024 were analyzed. The material is collected by hand and by mowing. The collection was carried out in the following biotopes and ecotones:

A - the edge of a beech forest, grassy;
B - steppe areas on gypsum hills, grassy;
C - rocky areas, including the edges of karst gypsum craters;
D - stony placers - under stones;
E – beech forest, tree crowns;
F – shrubs (mainly hawthorn);
G – forest litter of a beech forest;
H – dead dry wood (under the bark);
I – wet biotopes and ecotones, swamp, river bank.

The collected material was stored in 70% ethanol. The species were defined in a standard way, including using the identifier V. P. Tyshchenko (1971) and W. Nentwig (2023) (Nentwig et al., 2023). The classification of the habitats of the detected species of spiders was carried out according to the works of K. B. Horodkov (1986) and A. F. Yemelyanova (1974) (Venhryniuk et al., 2023). Statistical processing of the results was carried out using the Statistica 13.0 program.

3. Results and discussion

As a result of research in 9 biotopes and ecotones of the study area, 69 species of spiders of the six families mentioned above were found. Below is a list of species with an indication of the number of found specimens of different sexes, the habitat of capture and the characteristics of the range of each species:

Salticidae

1. *Ballus depressus* (Walckenaer, 1802) – ♀♀♂, on grass, 6 specimens – a species with a European-Iranian-Turanian polyzonal range.
2. *Ballus chalybeius* (Walckenaer, 1802) – ♀♀, on grass, on rock, 4 specimens – a species with a Western Palearctic-Turanian polyzonal range.
3. *Carrhotus bicolor* (Walckenaer, 1802) – ♀, on grass, 3 specimen – a species with a European-Caucasian polyzonal range.
4. *Euophrys frontalis* (Walckenaer, 1802) – ♀♂, on grass, under stones, 4 specimens – a species with a Eurasian polyzonal range.
5. *Euophrys erratica* (Walckenaer, 1825) – ♀, on grass, 3 specimen – a species with a secondary Holarctic (accidentally introduced to North America) polyzonal range.
6. *Evarcha arcuata* (Clerck, 1757) – ♀♀♂♂, on grass, under stones, 7 specimens – a species with a Palearctic-Neotropical polyzonal range.
7. *Evarcha flammata* (Clerck, 1757) – ♀♂, on grass, 3 specimens – a species with a Holarctic polyzonal range.
8. *Marpissa muscosa* (Clerck, 1757) – ♀, on grass, 3 specimen. – a species with a European-Siberian-Asia Minor-Caucasian polyzonal range.
9. *Marpissa radiata* (Grube, 1859) – ♀♀♂♂, on grass, under stones, on rocks, 10 specimens – a species with a European-Siberian polyzonal range.
10. *Neon reticulates* (Blackwall, 1853) – ♀, on grass, 3 specimen – a species with a Holarctic polyzonal range.
11. *Pseudicius encarpatus* (Walckenaer, 1802) – ♀♀♂♂, on grass, on bushes 11 specimens – a species with a European-Asia Minor-Caucasus-Turanian polyzonal range.
12. *Salticus scenicus* (Clerck, 1757) – ♀♀♂♂, on grass, under stones, on bushes 13 specimens – a species with a Holarctic polyzonal range.
13. *Salticus cingulatus* (Panzer, 1797) – ♀♀♂♂, on grass, 7 specimens – a species with a European-Siberian polyzonal range.
14. *Sibianor aurocinctus* (Ohlert, 1865) – ♀, on grass, 3 specimen – a species with a Eurasian polyzonal range.
15. *Sitticus floricola* (C. L. Koch, 1837) – ♀♀♂♂, on grass, 11 specimens – a species with a European polyzonal range. Accidentally introduced to North America.
16. *Sitticus pubescens* (Fabricius, 1775) – ♀, on grass, 3 specimen – a species with a European polyzonal range. Accidentally introduced to North and South America.
17. *Sitticus terebratus* (Clerck, 1757) – ♀, on grass, 5 specimens – a species with a European-Siberian boreal-montane range.
18. *Sitticus rupicola* (C. L. Koch, 1837) – ♀, on grass, 4 specimens – a species with a European polyzonal range. Accidentally introduced to North America.

Araneidae

19. *Argiope bruennichi* (Scopoli, 1772) - ♀, on grass, 3 specimen – a species with a Transpalearctic polyzonal range. Back in the 19th century, it was common only in the Mediterranean, now it has spread throughout the Palearctic.

20. *Araneus quadratus* Clerck, 1757 - ♀♀♂, on grass, 7 specimens. – a species with a Transpalearctic polyzonal range.

21. *Araneus circe* (Audouin, 1827) - ♀♀, on grass, on trees, on bushes, on rocks, on stones, 9 specimens – a species with a Transpalearctic polyzonal range.

22. *Araneus angulatus* (Clerck, 1757) - ♀♀♂, on grass, on trees, 5 specimens. – a species with a Transpalearctic polyzonal range, rare in many regions.

23. *Araneus omoedus* (Thorell, 1870) = *Gibbaranea omoeda* (Thorell, 1870) - ♀♀, on grass, on rocks, 3 specimens – a species with a Transpalearctic polyzonal range.

24. *Araneus gibbosus* Walckenaer, 1802 = *Gibbaranea gibbosa* (Walckenaer, 1802) - ♀♀, on bushes, 4 copies. – a species with a European-Asia Minor-Caucasian polyzonal range.

25. *Araneus diadematus* Clerck, 1757 - ♀♀♂♂, on grass, on trees, on rocks, on stones, on bushes, 27 specimens. – a species with a European polyzonal range, accidentally introduced to North America.

26. *Araneus sturmi* (Hahn, 1831) - ♀♀♂, on grass, on trees, on bushes, 9 specimens. – a species with a European-West Siberian polyzonal range.

27. *Aculepeira armida* (Audouin, 1826) - ♀♀♂♂, on grass, 7 specimens. – a species with a Transpalearctic polyzonal range.

28. *Aculepeira ceropegia* (Walckenaer, 1802) = *Aculepeira vachoni* (Karol, 1964) - ♀♀♂♂, on grass, 17 specimens. – a species with a Transpalearctic polyzonal range.

29. *Cercidia prominens* (Westring, 1851) - ♀♀, on grass, 3 specimen. – a species with a European-Asia Minor-Kazakhstan polyzonal range. Accidentally introduced to North America.

Thomisidae

30. *Philodromus dispar* Walckenaer, 1826 - ♀♀♂, on grass, on trees, 8 specimens – a species with a Holarctic disjunctive polyzonal range.

31. *Philodromus aureoles* (Clerck, 1757) - ♀♀♂, on grass, on trees, 5 specimens – a species with a European polyzonal range.

32. *Philodromus (Rhysodromus) historio* (Latreille, 1819) = *Philodromus elegans* Blackwall, 1861 - ♀, on grass, 3 specimens – a species with a Holarctic polyzonal range.

33. *Thanatus formicinus* (Clerck, 1757) - ♀, on grass, 3 specimen – a species with a Holarctic polyzonal range.

34. *Thanatus arenarius* (L. Koch, 1873) - ♀, on grass, 3 specimen – a species with a Holarctic polyzonal range.

35. *Tibellus maritimus* (Menge, 1875) - ♀♀, on grass, on aster flowers, 7 specimens – a species with a Holarctic polyzonal range.

36. *Tibellus oblongus* (Walckenaer, 1802) - ♀♀♂, on grass, 9 specimens. – a species with a Holarctic polyzonal range.

37. *Misumena vatia* (Clerck, 1757) - ♀♀♂♂, on grass, on aster flowers, 11 specimens – a species with a Holarctic polyzonal range.

38. *Xysticus bifasciatus* C. L. Koch, 1837 - ♀♀♂♂, on grass, on aster flowers, on the forest floor, on bushes, on rocks, under stones, on rocks, on moss, on river banks, on forest floor, on dead wood, 15 specimens – a species with a transpalearctic polyzonal range.

39. *Xysticus lanio* C. L. Koch, 1835 - ♀♀♂♂, on grass, on aster flowers, on the forest floor, 7 specimens. – a species with a transpalearctic polyzonal range.

40. *Xysticus luctuosus* (Blackwall, 1836) - ♀♀♂♂, on grass, on the forest floor, 9 specimens – a species with a Holarctic polyzonal range.

Pholcidae

41. *Pholcus opilionoides* (Schrank, 1781) – 9 specimens, ♂♂, ♀♀, cracks in rocks, karst depressions, human habitation, a species with a European-Caucasian-North African subtropical habitat.

42. *Pholcus phalangoides* Füssli, 1775 – 15 specimens, ♂♂, ♀♀, cracks in rocks, karst depressions, human habitation, a species with a Cosmopolitan disjunctive range.

Dictynidae

43. *Argenna subnigra* (O. P.-Cambridge, 1861) – ♀♀♂, 5 specimens, under stones, on the grass of steppe areas, on shrubs, a species with a European-West Siberian polyzonal range.
44. *Cicurina cicur* (Fabricius, 1793) – ♀♀, 4 specimens, on rocks, in caves, a species with a European-Turanian polyzonal range.
45. *Dictyna arundinacea* (Linnaeus, 1758) – ♀♀♂, 7 specimens, on the grass of forest edges and steppe areas, on rocks, a species with a Holarctic polyzonal range.
46. *Dictyna latens* (Fabricius, 1775) – ♀♀♂, 5 specimens, on the grass of steppe areas, under stones, on rocks, a species with a European-Turanian polyzonal range.
47. *Dictyna uncinata* Thorell, 1856 – ♀♀, 4 specimens, in the crown of beech forest trees, on bushes, a species with a Transpalaearctic polyzonal range.
48. *Nigma walckenaeri* (Roewer, 1951) (= *Ergatis walckenaeri* (Roewer, 1951)) – ♀♀, 4 specimens, edge of beech forest, on grass, a species with a western Palearctic polyzonal range.
49. *Lathys humilis* (Blackwall, 1855) – ♀♀♂♂, 8 specimens, tree crowns of beech and hornbeam forests, shrubs, a species with a European-Asia Minor-Caucasus-West Siberian polyzonal range.

Lycosidae

50. *Acantholycosa lignaria* (Clerck, 1757) - ♀♂, 4 specimens, on dead wood, a species with a European temperate range.
51. *Alopecosa aculeata* (Clerck, 1757) - ♀♀♂, 5 specimens, moss, forest litter of a beech forest, a species with a Holarctic polyzonal range.
52. *Alopecosa pulverulenta* (Clerck, 1757) - ♀♀♂♂, 7 specimens, forest floor, stones, rocks, beech forest edge (on soil), a species with a Transpalaearctic polyzonal range.
53. *Alopecosa inquilina* (Clerck, 1757) - ♀♂, 4 specimens, forest floor, edge of beech forest (on grass), a species with a European-Kazakhstan polyzonal range.
54. *Alopecosa mariae* (F. Dahl, 1908) - ♀♀♂, 5 specimens, on stones, on rocks, a species with a Transpalaearctic polyzonal range.
55. *Alopecosa schmidti* (Hahn, 1835) - ♀♀♂, 6 specimens, on stones, on rocks, on grass at the edge of a beech forest, a species with a European polyzonal range.
56. *Alopecosa trabalis* (Clerck, 1757) - ♀♀♂, 3 specimens, on the grass edge of a beech forest, a species with a European-Turanian polyzonal range.
57. *Alopecosa accentuata* (Latreille, 1817) - ♀♀♂♂, 8 specimens, forest floor, on stones, on rocks, on grass of beech forest edges, on grass of steppe areas, a species with a Transpalaearctic polyzonal range.
58. *Alopecosa cuneata* (Clerck, 1757) - ♀♀♂♂, 9 specimens, on stones, on rocks, on the grass of beech forest edges, on the grass of steppe areas, a species with a Eurasian polyzonal range.
59. *Alopecosa cursor* (Hahn, 1831) - ♀♀♂♂, 8 specimens, on moss, on stones, on rocks, on the grass of the beech forest edge, on the grass of steppe areas, a species with a European-Caucasian-Kazakhstan polyzonal range.
60. *Arctosa cinerea* (Fabricius, 1777) - ♀♀♂♂, 7 specimens, on the pebbles of the river bank, a species with a Transpalaearctic polyzonal range, there were finds on the banks of the Congo River (Africa) - possibly accidentally introduced.
61. *Pardosa lugubris* (Walckenaer, 1802) - ♀♀♂♂, 6 specimens, on the forest floor, a species with a Transpalaearctic polyzonal range.
62. *Pardosa prativaga* (L. Koch, 1870) - ♀♀♂♂, 8 specimens, on the grass edge of a beech forest, a species with a Eurasian polyzonal range.
63. *Pardosa pullata* (Clerck, 1757) - ♀♀♂, 5 specimens, on the grass of the edge of the beech forest, on the grass of the steppe areas, a species with a European polyzonal range.
64. *Pardosa amentata* (Clerck, 1757) - ♀♀♂♂, 10 specimens, on the grass at the edge of a beech forest, on the river bank, on the forest floor, a species with a European temperate range.
65. *Pardosa agricola* (Thorell, 1856) - ♀♀♂♂, 4 specimens, on river bank pebbles, a species with a European-Kazakhstan polyzonal range.
66. *Piratula hygrophila* (Thorell, 1872) - ♀♀, 3 specimens, on mosses in a swampy area, a species with a European-Siberian polyzonal range.
67. *Piratula latitans* (Blackwall, 1841) - ♀♀♂, 3 specimens, on the grass at the edge of a beech forest, a species with a European-Asia Minor-Iranian polyzonal aeal.
68. *Trochosa spinipalpis* (O. P.-Cambridge, 1895) - ♀♀♂, 5 specimens, on the grass edge of a beech forest, a species with a Transpalearctic polyzonal range.

69. *Trochosa terricola* Thorell, 1856 - ♀♀♂♂, 6 specimens, on the grass of the edge of the beech forest, on the grass of the steppe areas, forest floor, a species with a European nemoral habitat.

The number of identified species and their biotope distribution are shown in Table 1 and Fig. 1. The largest number of species was found on the edges of broad-leaved forests - beech and hornbeam (53 species). The fewest species were found on dead, dry wood (under the bark) (2 species). The faunal affinity of the investigated biotopes of the Dniester Canyon and adjacent territories was investigated using the Jaccard (S) and Sørensen (K) criteria. The results of the analysis are given in Table. 2, Fig. 2, 3.

Table 1.

Biotope distribution of spider species in the conditions of the Dniester Canyon and adjacent territories.

№	Species	Biotopes and ecotones								
		A	B	C	D	E	F	G	H	I
Salticidae										
1	*Ballus depressus* (Walckenaer, 1802)	+	+							
2	*Ballus chalybeius* (Walckenaer, 1802)	+	+	+						
3	*Carrhotus bicolor* (Walckenaer, 1802)	+								
4	*Euophrys frontalis* (Walckenaer, 1802)	+	+		+					
5	*Euophrys frontalis* (Walckenaer, 1802)	+	+		+					
6	*Euophrys erratica* (Walckenaer, 1825)	+	+							
7	*Evarcha flammata* (Clerck, 1757)	+								
8	*Marpissa muscosa* (Clerck, 1757)	+	+							
9	*Marpissa radiata* (Grube, 1859)	+	+	+	+					
10	*Neon reticulates* (Blackwall, 1853)	+								
11	*Pseudicius encarpatus* (Walckenaer, 1802)	+	+				+			
12	*Salticus scenicus* (Clerck, 1757)	+	+		+		+			
13	*Salticus cingulatus* (Panzer, 1797)	+								
14	*Sibianor aurocinctus* (Ohlert, 1865)	+	+							
15	*Sitticus floricola* (C. L. Koch, 1837)	+	+							
16	*Sitticus pubescens* (Fabricius, 1775)	+	+							
17	*Sitticus terebratus* (Clerck, 1757)	+	+							
18	*Sitticus rupicola* (C. L. Koch, 1837)	+	+							
Araneidae										
19	*Argiope bruennichi* (Scopoli, 1772)	+	+							
20	*Araneus quadratus* Clerck, 1757	+	+							
21	*Araneus circe* (Audouin, 1827)	+	+	+	+	+	+			
22	*Araneus angulatus* (Clerck, 1757)	+	+			+				
23	*Araneus omoedus* (Thorell, 1870)	+	+	+						
24	*Araneus gibbosus* Walckenaer, 1802						+			
25	*Araneus diadematus* Clerck, 1757	+	+	+	+	+	+			
26	*Araneus sturmi* (Hahn, 1831)	+	+			+	+			
27	*Aculepeira armida* (Audouin, 1826)	+								
28	*Aculepeira ceropegia* (Walckenaer, 1802)	+	+							
29	*Cercidia prominens* (Westring, 1851)	+	+							
Thomisidae										
30	*Philodromus dispar* Walckenaer, 1826	+	+			+				
31	*Philodromus aureoles* (Clerck, 1757)	+	+							
32	*Philodromus historio* (Latreille, 1819)	+	+							
33	*Thanatus formicinus* (Clerck, 1757)	+								
34	*Thanatus arenarius* (L. Koch, 1873)	+	+							
35	*Tibellus maritimus* (Menge, 1875)	+	+							

№	Species	Biotopes and ecotones								
		A	B	C	D	E	F	G	H	I
36	*Tibellus oblongus* (Walckenaer, 1802)	+	+							
37	*Misumena vatia* (Clerck, 1757)	+	+							
38	*Xysticus bifasciatus* C. L. Koch, 1837	+	+	+	+	+	+	+	+	+
39	*Xysticus lanio* C. L. Koch, 1835	+	+					+		
40	*Xysticus luctuosus* (Blackwall, 1836)	+						+		
Pholcidae										
41.	*Pholcus opilionoides* (Schrank, 1781)			+						
42.	*Pholcus phalangoides* Füssli, 1775			+						
Dictynidae										
43.	*Argenna subnigra* (O. P.-Cambridge, 1861)		+		+		+			
44.	*Cicurina cicur* (Fabricius, 1793)			+						
45.	*Dictyna arundinacea* (Linnaeus, 1758)	+	+							
46.	*Dictyna latens* (Fabricius, 1775)		+	+	+					
47.	*Dictyna uncinata* Thorell, 1856					+				
48.	*Nigma walckenaeri* (Roewer, 1951)	+								
49.	*Lathys humilis* (Blackwall, 1855)					+	+			
Lycosidae										
50.	*Acantholycosa lignaria* (Clerck, 1757)								+	
51.	*Alopecosa aculeata* (Clerck, 1757)							+		
52.	*Alopecosa pulverulenta* (Clerck, 1757)			+	+			+		
53.	*Alopecosa inquilina* (Clerck, 1757)	+						+		
54.	*Alopecosa mariae* (F. Dahl, 1908)			+	+					
55.	*Alopecosa schmidti* (Hahn, 1835)	+		+	+					
56.	*Alopecosa trabalis* (Clerck, 1757)	+								
57.	*Alopecosa accentuata* (Latreille, 1817)	+	+	+	+			+		
58.	*Alopecosa cuneata* (Clerck, 1757)	+	+	+	+					
59.	*Alopecosa cursor* (Hahn, 1831)	+	+	+	+					+
60.	*Arctosa cinerea* (Fabricius, 1777)				+					+
61.	*Pardosa lugubris* (Walckenaer, 1802)							+		
62.	*Pardosa prativaga* (L. Koch, 1870)	+								
63.	*Pardosa pullata* (Clerck, 1757)	+	+							
64.	*Pardosa amentata* (Clerck, 1757)	+						+		+
65.	*Pardosa agricola* (Thorell, 1856)									+
66.	*Piratula hygrophila* (Thorell, 1872)									+
67.	*Piratula latitans* (Blackwall, 1841)	+								
68.	*Trochosa spinipalpis* (O. P.-Cambridge, 1895)	+								
69.	*Trochosa terricola* Thorell, 1856	+	+					+		
The number of detected species		53	40	16	16	8	9	10	2	6

Note: Designation of biotopes and ecotones as in section 2.

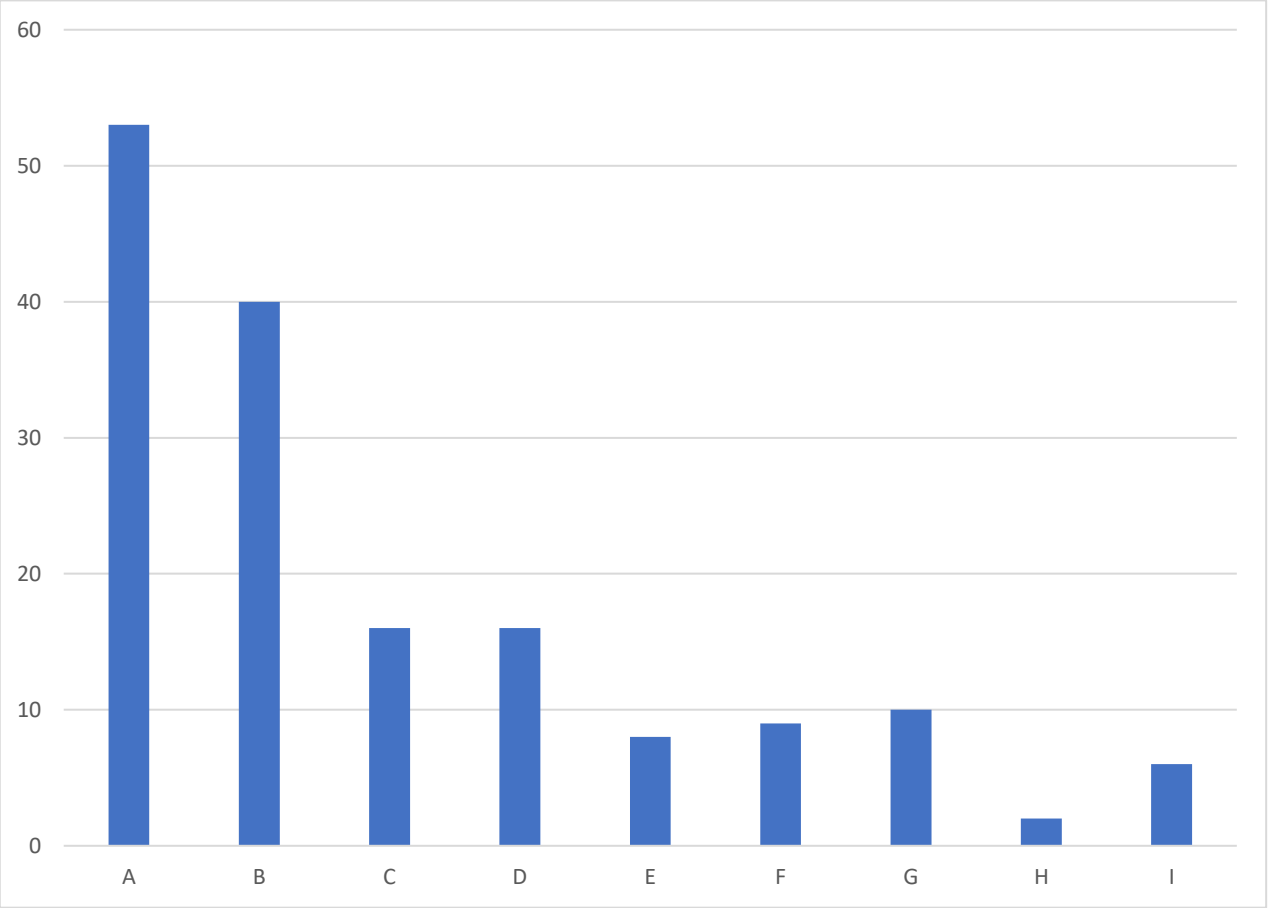

Figure 1. The number of species of spiders found in different biotopes and ecotones of the Dniester Canyon and in the adjacent territories. Designation of biotopes and ecotones as in section 2.

Table 2.

Faunal affinity of the studied biotopes and ecotones by species complexes of spiders of the Dniester Canyon and adjacent territories. Values of Jacquard (%) (upper right) and Sørensen (lower left) criteria are shown. Designation of biotopes and ecotones as in section 2.

	A	B	C	D	E	F	G	H	I
A	-	69.10	7.81	18.97	8.93	10.71	12.50	1.85	5.36
B	0.817	-	21.74	27.27	14.29	16.67	9.09	2.44	4.54
C	0.145	0.357	-	52.38	14.29	13.64	13.04	5.88	10.00
D	0.318	0.429	0.688	-	14.29	9.52	13.04	5.88	15.80
E	0.170	0.250	0.250	0.250	-	41.67	20.00	11.11	7.69
F	0.194	0.286	0.240	0.160	0.588	-	5.56	10.00	7.14
G	0.222	0.160	0.231	0.231	0.333	0.105	-	9.09	6.67
H	0.036	0.048	0.111	0.111	0.200	0.182	0.167	-	14.29
I	0.102	0.087	0.182	0.273	0.143	0.133	0.125	0.250	-

The most closely related species complexes of spiders of the families Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae were the biotopes at the edges of broad-leaved forests (beech and hornbeam) (A) and steppe areas on the tops of hills (B) (S = 69.10; K = 0.817). The least related species complexes of spiders of the families Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae were the biotopes of the edges of broad-leaved forests (beech and hornbeam) (A) and dead wood ecosystems (spiders living under the bark of dry dead trees) (B) (S = 1.85; K = 0.036).

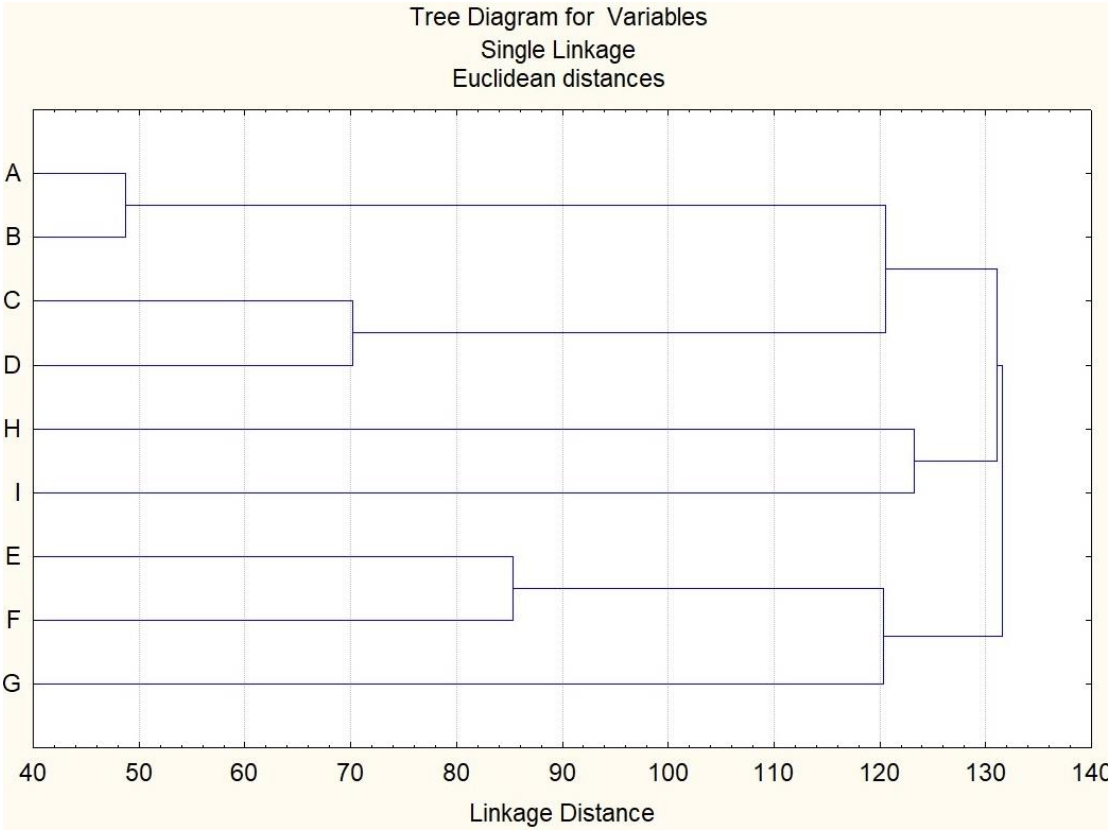

Figure 2. Dendrogram of faunal affinities of the studied biotopes by species complexes of spiders of the families Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae of the Dniester Canyon and adjacent territories according to the values of Jaccard's criterion (%). Conventional units. Designation of biotopes and ecotones as in section 2.

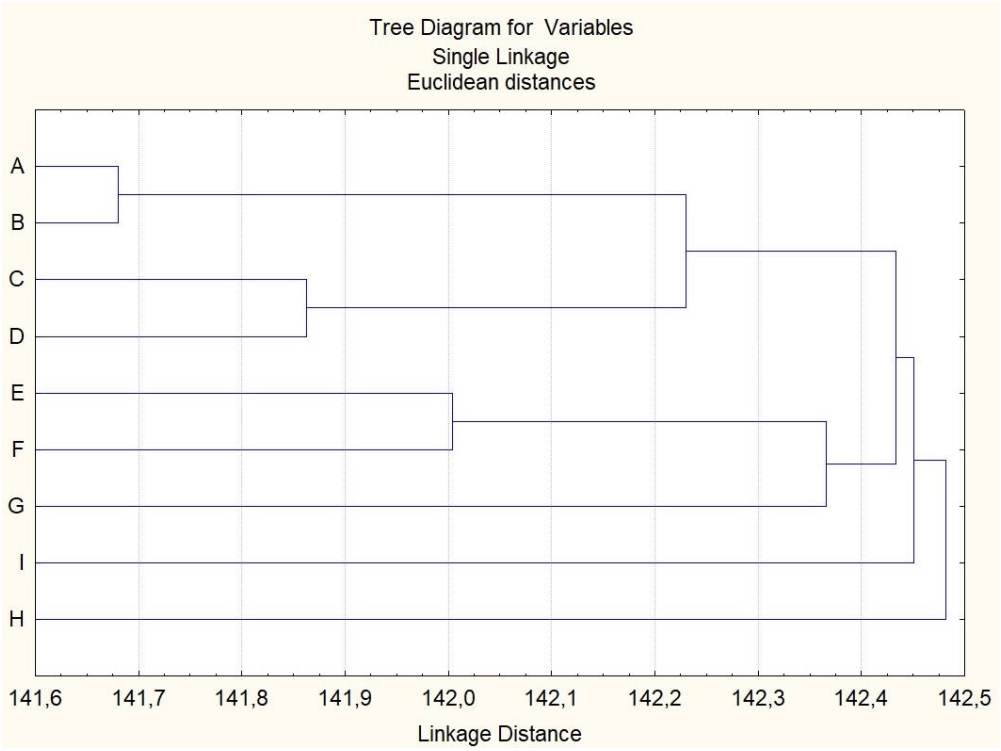

Figure 3. Dendrogram of faunal affinities of the studied biotopes by species complexes of spiders of the families Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae of the Dniester Canyon and adjacent territories according to the values of the Sørensen criterion. Conventional units. Designation of biotopes and ecotones as in section 2.

The analysis of the habitats of the detected species of spiders of the families Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, and Lycosidae showed that species with the following types of habitats are found in the study area (Fig. 4):

A - cosmopolitan - 1 species;
B - Holarctic - 14 species;
C - Eurasian - 4 species;
D - transpalearctic - 15 species;
E - palearctic-neotropical - 1 species;
F - European - 11 species;
G – European-Siberian – 5 species;
H – European-Iranian-Turanian – 1 species;
I - Western Palearctic-Turanian - 1 species;
K – European-Caucasian – 1 species;
L - European-Siberian-Asia Minor - 1 species;
M - European-Asia Minor-Caucasian-Turanian - 1 species;
N - European-Asia Minor-Caucasian - 1 species;
O - European-Asia Minor-Kazakhstan - 1 species;
P - European-Caucasian-North African - 1 species;
R - European-Turanian - 3 species;
S - Western Palearctic - 1 species;
T - European-Asia Minor-Caucasian-Siberian - 1 species;
U – European-Kazakhstan – 2 species;
V - European-Caucasian-Kazakhstan - 1 species;
W - European-Asia Minor-Turanian - 1 species.

According to the latitudinal principle of habitat classification, species with the following types of habitats were identified:

Boreal-montane (BM) – 1 species;
Temperate (T) - 2 species;
Nemoral (N) – 1 species;
Polyzonal (P) – 63 species;
Subtropical (ST) – 1 species;
Cosmopolitan (K) - 1 species.

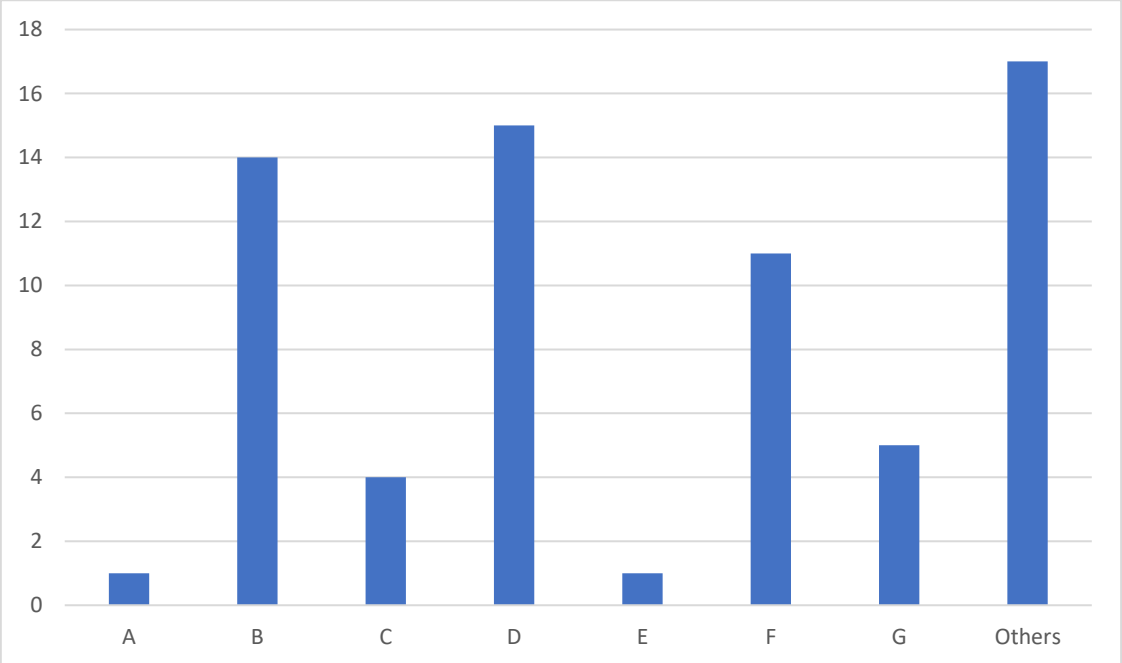

Figure 4. The number of detected species of spiders with different types of habitats. Explanation in the text.

4. Conclusions

1. 69 species of spiders of the families Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, and Lycosidae were found in the Dniester Canyon and adjacent territories, according to their own research.
2. The richest species of spiders of the families Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, and Lycosidae in the study area was found to be the edge ecotone of beech and hornbeam forests.
3. On the territory of the study, the biotopes of broad-leaved forests (beech and hornbeam) and steppe areas on the tops of hills turned out to be the most closely related in terms of species complexes of spiders.
4. Most species with a transpalearctic polyzonal range were found.

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Венгринюк Ігор Васильович, Сіренко Артур Геннадійович. Біотопічний розподіл видів павуків (Aranei, Arachnida, Arthropoda) в умовах Дністровського каньйону та прилеглих територій. *Журнал Прикарпатського університету імені Василя Стефаника*, 11 (2024), 156-167

Анотація. Досліджено екологічну приуроченість на розподіл угруповань павуків (Aranei, Arachnida, Arthropoda) по різним фітокомплексам в умовах Дністровського каньйону та прилеглих територій. Досліджено видові комплекси павуків 6 родин: Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae. Всього було виявлено 69 видів павуків з цих шести родин. Досліджено угруповванні павуків таких фітокомплексів, екотонів та біотопів: A - узлісся широколистяних букових та грабових лісів; B - степові ділянки на пагорбах; C – скельні ділянки з петрофільною рослинністю, включаючи краї карстових гіпсових та вапнякових кратерів; D – кам'янисті розсипи з петрофільною рослинністю; E – крони дерев широколистяних букових та грабових лісів; F – чагарники (переважно глід та терен); G – лісова підстилка букового та грабового лісу; H – мертва суха деревина; I – вологі біотопи та екотони, заболочені ділянки та береги річок. Найбільше видів було виявлено в травостої узлісся букових та грабових лісів (A) – 53. Найменше видів досліджених рожин павуків було було виявлено на мертвій деревині (H) – 2 види та берегах річок та на заболочених ділянках (I) – 6. У травостої степових ділянок (B) виявлено 40 видів павуків, на скельних ділянках з петрофільною рослинністю (C) – 16 видів, на кам'янистих розсипах з петрофільною рослинністю (D) – 16 видів, у кронах дерев букових та грабових лісів (E) – 8 видів, на чагарниках (глід, терен) (F) – 9 видів, на лісовій підстилці широколистяних лісів (G) – 10 видів павуків досліджених родин. Тільки 1 вид павуків - *Xysticus bifasciatus* C. L. Koch, 1837 (Thomisidae, Aranei, Arachnida, Arthropoda) виявлених в усіх досліджених фітокомплексах. 5 виявлених видів павуків зустрічались тільки в одному з досліджених фітокомплексів. Більшість виявлених видів мають маскувальне забарвлення, що пов'язане з певними видами рослин, в тому числі квітів, на яких ці види павуків ведуть полювання. Щодо всіх виявлених видів здійснений ареологічних аналіз, досліджено фауністичну спорідненість угруповань павуків різних досліджених фітокомплексів. Нових видів для фауни України виявлено не було.
Ключові слова: Salticidae, Araneidae, Thomisidae, Pholcidae, Dictynidae, Lycosidae, фауна.