

The ^{137}Cs accumulation by plants of floodplain ecosystem

Oleksandr Lukash* (1), Anita Szikura (2), Halina Tkaczenko (3), Natalia Kurhaluk (3)

1 Department of Ecology, Geography and Nature Management, T.H. Shevchenko National University "Chernihiv Colehium", Chernihiv, Ukraine,

2 Department of Biology and Chemistry, Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education, Berehove, Ukraine

3 Institute of Biology, Pomeranian University in Slupsk, Slupsk, Poland

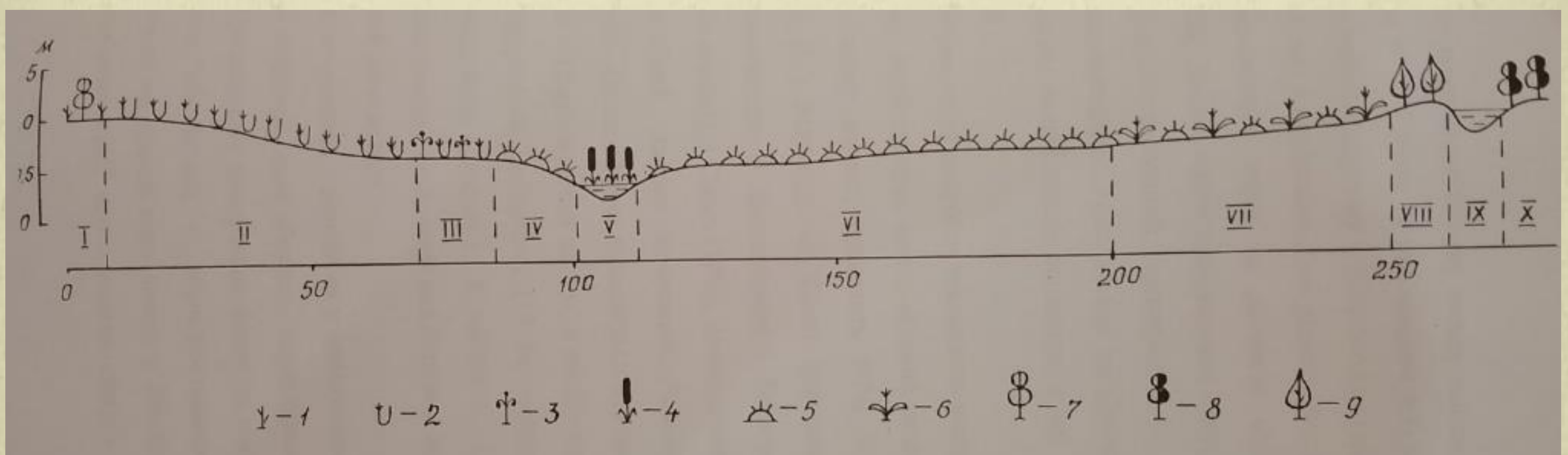
*corresponding author, lukash2011@ukr.net

The analysis of ^{137}Cs accumulation by plants of forest, marsh, meadow, psamophytic and ruderal communities in the Dnipro River floodplain (Ukraine) was carried out.



Tab.. The ^{137}Cs radionuclides (Bq/kg) accumulation by dominants and co-dominants of psamophytic, ruderal, meadow and marsh plant communities in the Dnipro River floodplain ecosystem (the Chernihiv Region, Northern Ukraine)

| Ecosystem type | Biomorpha | Plant species | Average | Mediana | Minimum | Maksimum |
|-----------------|-----------|--------------------------|----------|----------|----------|----------|
| II- psamophytic | Pc | Helichrysum arenarium | 331,7000 | 336,0000 | 285,0000 | 362,0000 |
| psamophytic | Pc | Calamagrostis epigejos | 283,0000 | 268,0000 | 226,0000 | 356,0000 |
| psamophytic | Pc | Thymus serpyllum | 225,7000 | 228,5000 | 198,0000 | 243,0000 |
| psamophytic | Mm | Oenothera biennis | 219,6000 | 211,0000 | 188,0000 | 329,0000 |
| psamophytic | Mm | Trifolium arvense | 189,3000 | 188,5000 | 167,0000 | 211,0000 |
| III - ruderal | Pc | Artemisia absinthium | 164,1000 | 160,5000 | 147,0000 | 191,0000 |
| ruderal | Md | Berteroa incana | 273,1000 | 278,0000 | 242,0000 | 306,0000 |
| ruderal | Pc | Cichorium intybus | 42,70000 | 45,00000 | 35,00000 | 51,00000 |
| ruderal | Md | Echium vulgare | 215,6000 | 216,0000 | 184,0000 | 241,0000 |
| ruderal | Mm | Verbascum lychnitis | 122,5000 | 122,0000 | 107,0000 | 138,0000 |
| IV - meadow | Pc | Achillea millefolium | 213,4000 | 213,5000 | 204,0000 | 225,0000 |
| meadow | Pc | Fragaria vesca | 249,4000 | 248,5000 | 217,0000 | 297,0000 |
| meadow | Pc | Hypericum perforatum | 361,7000 | 365,5000 | 306,0000 | 398,0000 |
| meadow | Pc | Poa pratensis | 346,7000 | 343,5000 | 302,0000 | 382,0000 |
| meadow | Pc | Vicia cracca | 389,1000 | 390,5000 | 367,0000 | 412,0000 |
| V- marsh | Pc | Alisma plantago-aquatica | 362,9000 | 363,0000 | 335,0000 | 392,0000 |
| marsh | Pc | Cicuta virosa | 410,9000 | 411,5000 | 372,0000 | 451,0000 |
| marsh | Pc | Glyceria maxima | 391,5000 | 391,5000 | 352,0000 | 418,0000 |
| marsh | Pc | Sium latifolium | 375,6000 | 376,0000 | 342,0000 | 411,0000 |
| marsh | Pc | Stachys palustris | 392,9000 | 395,0000 | 368,0000 | 422,0000 |



Conclusions. The intensity of radionuclide uptake by plants is determined both by the biological characteristics of the species and by the soil and the cenotic habitat conditions. The species specificity of radiocesium accumulation by plants of specific biotopes and the direct dependence of the plant accumulation coefficient on the density of biotope contamination with radionuclides were confirmed. The conducted studies illustrated not only interspecies differences in the intensity of ^{137}Cs accumulation in one type of local habitat, but also variations in the accumulation of radionuclides in different systematic groups and life forms.