
RIVER RENATURALIZATION
AFTER FOREST CUTTING
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# Intensive loggings in the basins of small rivers in the Carpathian lead to

- almost complete destruction of biotic communities in the mainstream
- increased turbidity and changes in water chemistry
- changes in aquatic habitats
- decrease in biodiversity
- general weakening of the natural functions of rivers

- timber transportation along the river is a major cause of physical destruction of formed natural habitats;
- pollution of river by wood chips, barks, wood and other logging wastes affects biological component of the river;
- pollution of rivers by foreign objects leads to changes in hydrological regime;
- pollution of river wood chips and pine needles cause changes in the hydrochemical indices;
- restoring the biotic structure of river mainstream and, consequently, water quality after such negative impacts take a long period of time.


The results of the negative impacts are tracked for decades, but in the absence of measures for restoration may not disappear never

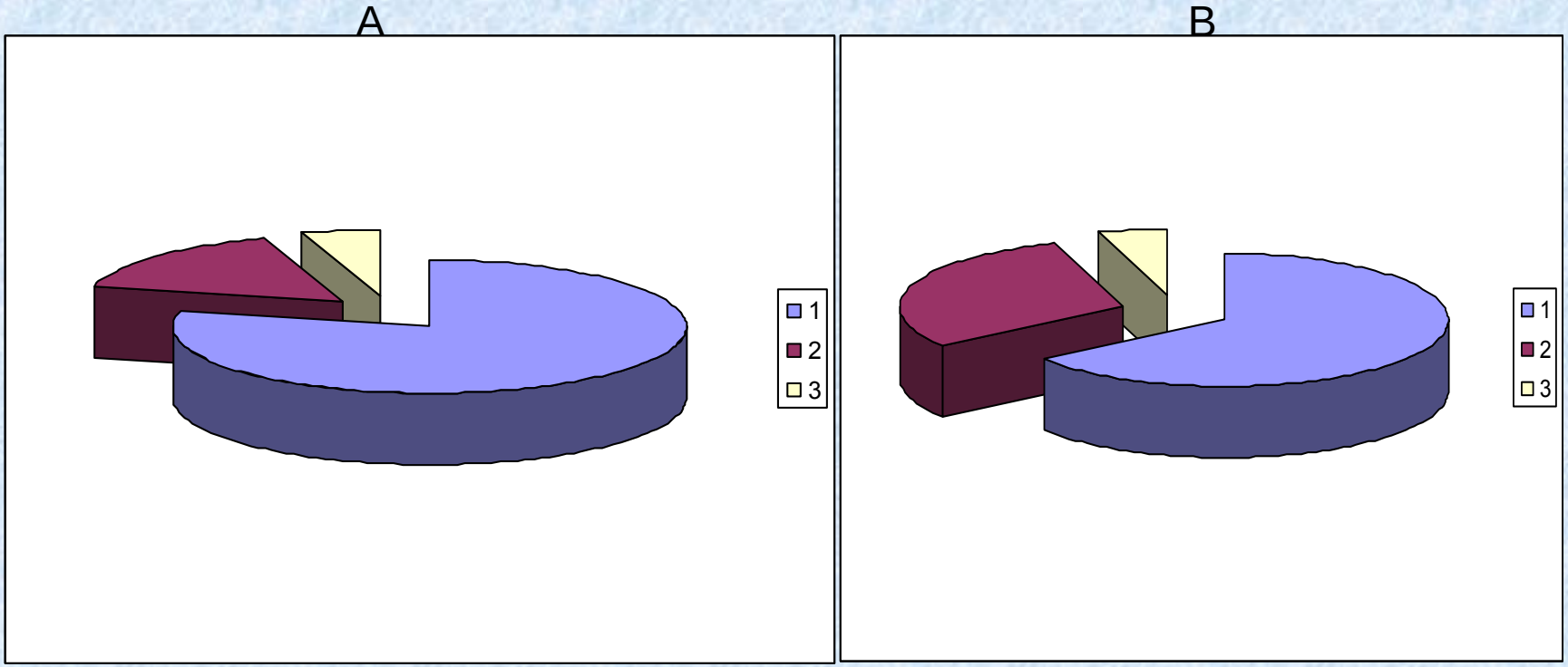

The Skorodniy stream before restoration,
a year after loggings have been finished

# Even a year after loggings

- the natural habitats of the river bed were altered drastically;
- significant amount of residual wood chips and logs were located in the river;
- bad hydrochemical and hydrological regimes suppressed hydrobionts;
- native biota, intrinsic for this type of rivers, were practically absent; there were only xylophyte organisms and organisms which indicate bad state of the waters.

**Abundance (A) and biomass (B) ratio the year after loggings in the Skorodniy stream**.

1– Gammaridae, 2 – Hirudinea, 3 – Chironomidae

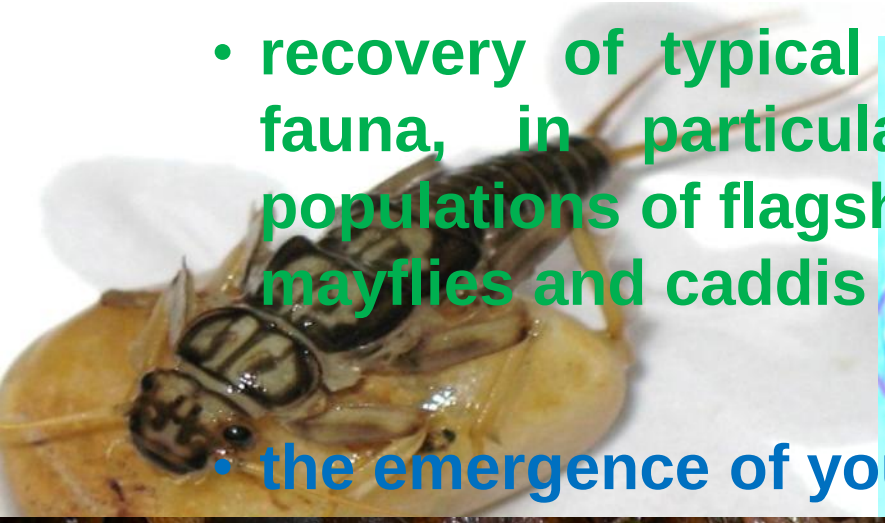


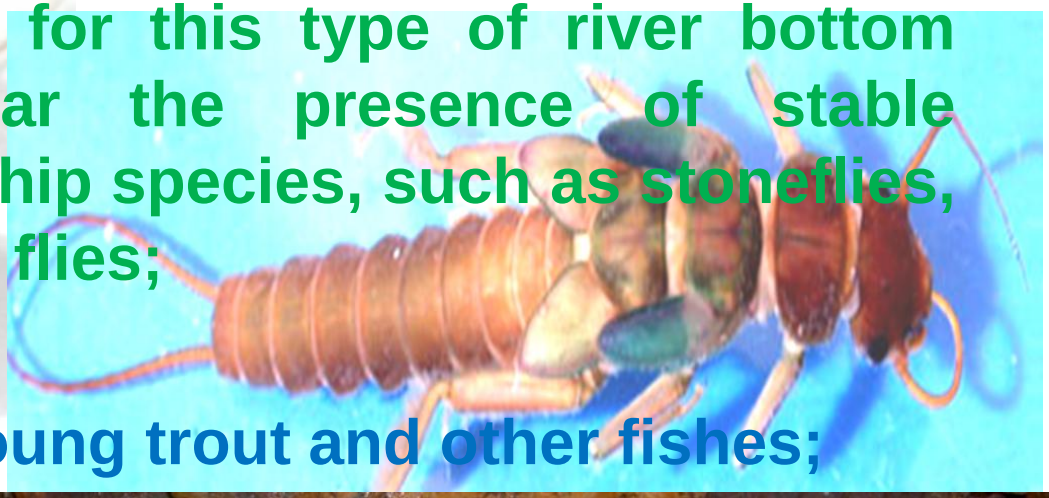
# **Step 1**. Clearing of pollution.

**Step 2.** Biotopical structure recovery by creating a rapids and rifts from local stones

**Step 3**. Introduction of invertebrates in the streambed from the undisturbed rivers of the region.

# Indicators of successful renaturalization are





- recovery of typical for this type of river bottom fauna, in particular the presence of stable populations of flagship species, such as stoneflies, mayflies and caddis flies;

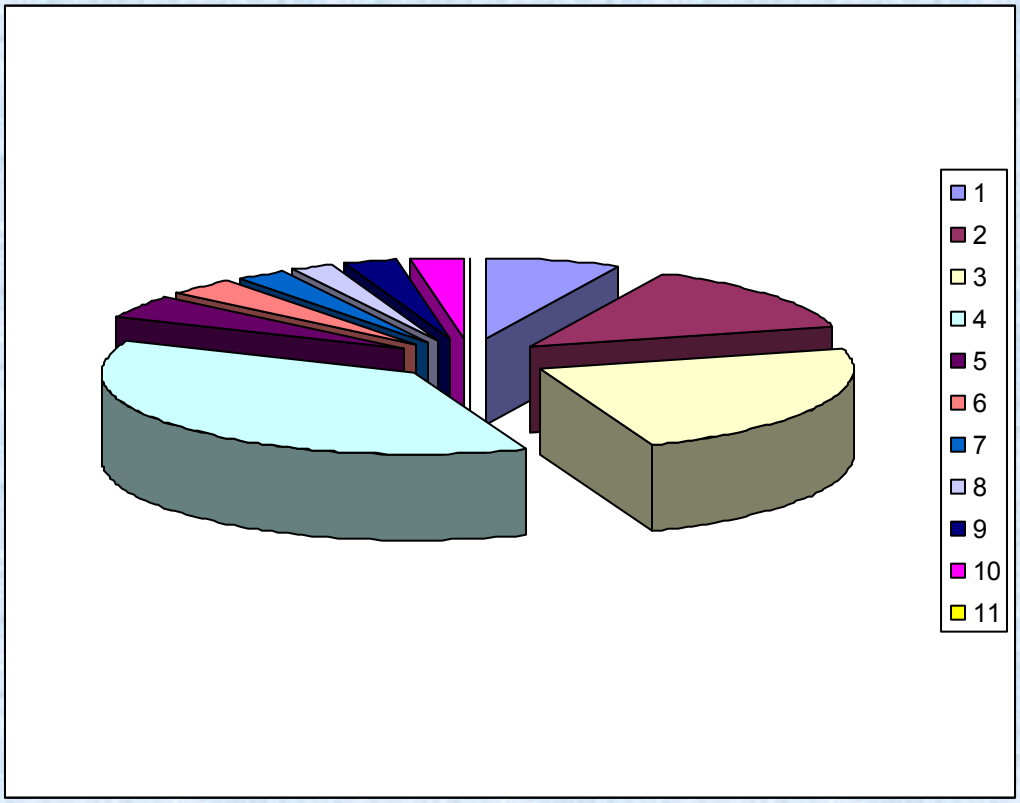
- the emergence of young trout and other fishes;

- achievement for this stream the water quality assessment - «pure»;

- achievement the values of biological, hydrochemical and hydro-morphological descriptors of the ecological status relevant to Class 2.

**Abundance ratio after invertebrates introduction in the Skorodniy stream**.

1 – Plecoptera, 2 – Trichoptera, 3 – Efemeroptera, 4 – Chironomidae, 5 –Simuliidae, 6 – Gammaridae, 7 – Oligochaeta, 8 – Coleoptera, 9 – Diptera, 10 – Ceratopogonididae, 11– Hirudinea.




Thanks for your attention