Invertebrate recovery from a bed-moving spate: the role of drift versus movements inside or over the substratum

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With 3 figures and 2 tables in the text

Abstract: In a prealpine Swiss river, the contribution of invertebrate drift to recovery after disturbance was assessed by exposing substratum trays shortly after a bed-moving spate, when invertebrate densities were still low. Trays of two different types were exposed in pairs. One tray was suspended above the streambed, and thus able to be colonized by drift only. The other was buried flush with the streambed, and thus open to colonization from all directions. Both were filled with natural river substratum. Five pairs of trays were sampled 1, 4 and 7 days after placing them in the stream. Total invertebrate abundances and taxon richness were similar in both types of trays, as were densities of *Baetis* spp. and *Rhithrogena* spp. (Ephemeroptera), *Leuctra* spp. (Plecoptera), and *Corynoneura/Thienemanniella* spp. (Chironomidae). Simuliidae and Orthocladiinae (Chironomidae) densities were higher in the suspended trays. None of the common taxa were more abundant in the buried trays. This implies that invertebrates colonized the trays almost exclusively by drift and not by movements inside or over the surface of the substratum. Although several other authors have reached similar conclusions in earlier experiments, their results may have been obtained by combinations of different artifacts caused by their respective experimental designs. Therefore, we suggest that the role of drift for recolonization ought to be investigated further in experiments where substratum trays are exposed shortly after a spate. This approach should yield more realistic results than previous designs, at least for assessing the effects of spates that cause more than just local disruptions.

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