

Nakano, Sh. & Murakami, M. (2001): Reciprocal subsidies: Dynamic interdependence between terrestrial and aquatic food webs. PNAS 98(1): 166-170.

Reference: Nakano, Sh. & Murakami, M. (2001): Reciprocal subsidies: Dynamic interdependence between terrestrial and aquatic food webs. PNAS 98(1): 166-170.

Short reference: Nakano & Murakami (2001)

First author: Nakano, Shigeru

Year: 2001

Abstract

Reciprocal subsidies: Dynamic interdependence between terrestrial and aquatic food webs

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Mutual trophic interactions between contiguous habitats have remained poorly understood despite their potential significance for community maintenance in ecological landscapes. In a deciduous forest and stream ecotone, aquatic insect emergence peaked around spring, when terrestrial invertebrate biomass was low. In contrast, terrestrial invertebrate input to the stream occurred primarily during summer, when aquatic invertebrate biomass was nearly at its lowest. Such reciprocal, across-habitat prey flux alternately subsidized both forest birds and stream fishes, accounting for 25.6% and 44.0% of the annual total energy budget of the bird and fish assemblages, respectively. Seasonal contrasts between allochthonous prey supply and in situ prey biomass determine the importance of reciprocal subsidies.

biodiversity: fishes, amphibians, reptiles

biodiversity: birds

forest stand structure: community structure

ecosystem: food chain

Notes

forest-stream ecotone; allochthonous prey flux

Címszavazva - VA

Journal: Proceedings of the National Academy of Sciences

Location: ER Archívum (2001/P-010)

Type: scientific paper

Katalógusba vette: Gulyás Györgyi

Katalógusbavétel időpontja: Fri, 11/06/2009 - 12:00