Tracing Energy Flow of Forest Streams in Neotropical Savannas: an Macroinvertebrate Community Assessment

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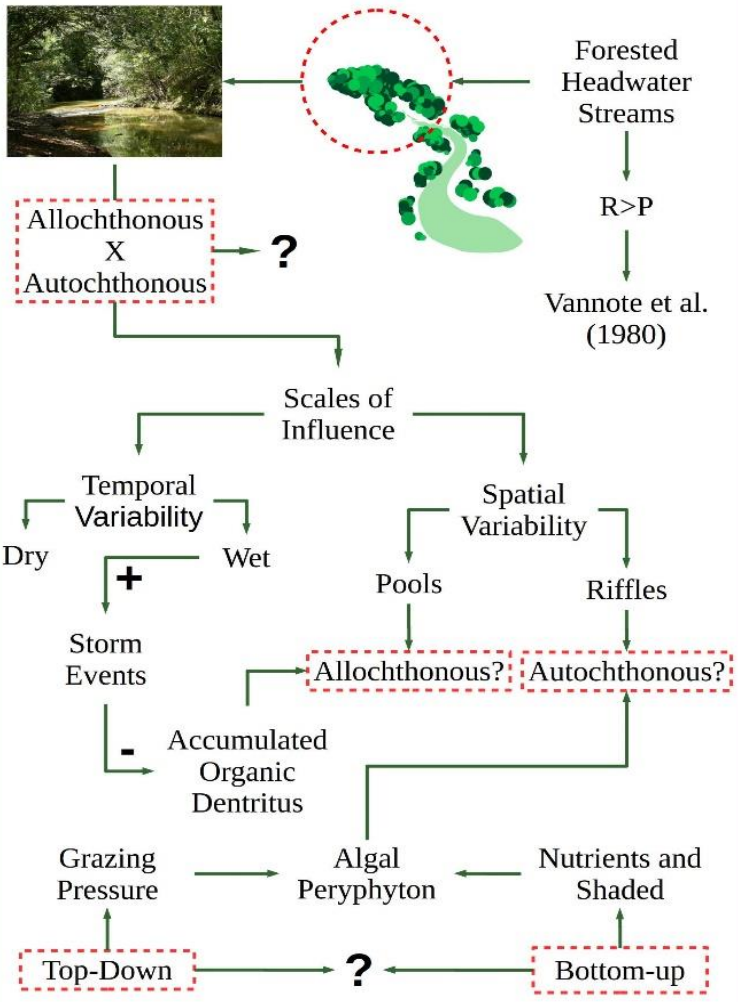
Introduction

Knowledge of the sources and fluxes of energy through food webs is important to understanding the productivity and diversity of consumers and essential to understand their ecological interactions.

The small forested headwater streams has identified as principally heterotrophic and dependent on allochthonous leaf litter. However, a significant degree of autochthony has been reported in some small forested streams.

For this question, it is necessary to check the spatial and temporal scales of influence:

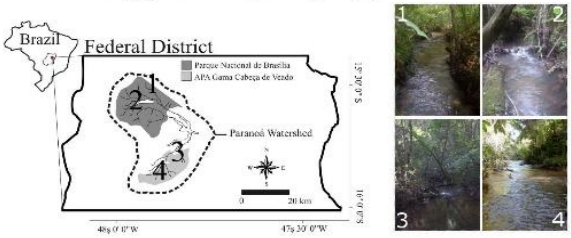
- The riffles and pools (shallow areas with fast flow and deep areas with slow flow in a channel) provide a spatial heterogeneity in substrate materials and local flow velocities.
- The rate of input and accumulation of allochthonous organic matter into streams depends on the seasonal distributions of rainfall and episodic storm events.



Furthemore, algal peryphyton in lotic systems is controlled either from the bottom-up (e.g. nutrients and light, which determine growth rates) or from the top-down (e.g. grazing pressure, which reduces accumulated biomass).

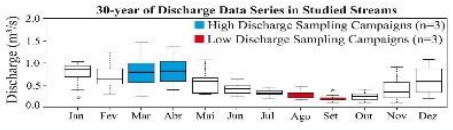
Methods

Headwater streams: Tortinho (1), Três Barras (2), Cabeça-de-Veado (3) and Capetinga (4).



At each stream site, we established a longitudinal reach equal to 40 times the mean wetted width and collected in 11 equidistant sampling points.

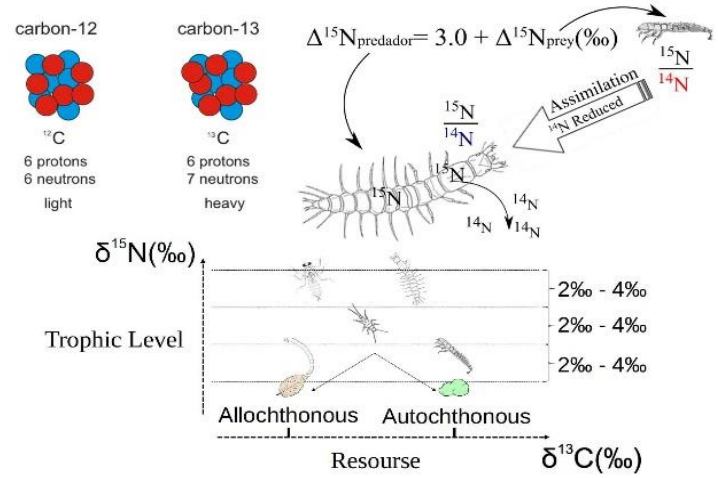
We sampled in march to april (high discharge) and in august to september (low discharge).



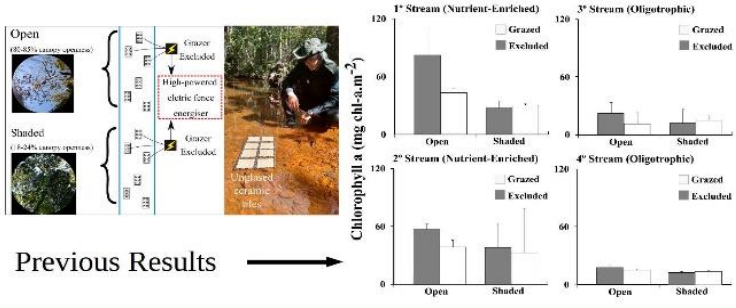
Carbon and Nitrogen Stable Isotopes Metodology

The energy flow and trophic relationships among the organisms in an ecosystem may be assessed using stable isotope analysis of carbon and nitrogen.

Provide information that incorporates spatio-temporal scales and facilitates the analysis of food assimilation by consumers and the definition of their trophic niches.



Bottom-up and Top-Down Experiment



Previous Results →

Objectives

- Assess the trophic structure of benthic invertebrate associated with seasonal hydrologic and habitat variations
- Experimentally manipulate the density of benthic algivorous macroinvertebrates in shaded and open nutrient-enriched