Modeling Leaf/Canopy Photosynthesis

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Abstract
Measuring the primary production of whole canopies has become an increasingly important aspect of ecological research. Questions pertaining to plant competition for light at the community level, to concern over changes in canopy flux rates resulting from global warming or increasing atmospheric CO2, can in part be addressed with measurements of whole canopy photosynthesis. Since photosynthesis measurements of individual foliage elements will generally not represent the behaviour of the whole plant (due to differences in age, physiology and exposure to microclimatic conditions), an important method for estimating these fluxes has involved the use of whole-canopy photosynthesis models. In this chapter, we will present a class of these models that scale up from single-leaf estimates to the whole canopy.

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