

# Models, mechanisms and pathways of succession

Pickett, S. T.A.

Collins, S. L.

Armesto, J. J.

The study of succession has been hampered by the lack of a general theory. This is illustrated by confusion over basic concepts and inadequacy of certain models. This review clarifies the basic ideas of pathway, mechanism, and model in succession. Second, in order to prevent inappropriate narrowness in successional studies, we analyze the mechanistic adequacy of the most widely cited models of succession, those of Connell and Slatyer. This analysis shows that models involving a single pathway or a dominant mechanism cannot be treated as alternative, testable hypotheses. Our review shows much more mechanistic richness than allowed by these widely cited models of succession. Classification of the mechanisms of specific replacement, called for by existing models, is problematic and less valuable than the search for the actual mechanisms of particular seres. For example, the 'tolerance' mechanism of succession has at least two contrasting meanings and is unlikely to be disentangled from th