

Litterfall dynamics and nitrogen use efficiency in two evergreen temperate rainforests of southern Chile

Pérez, Cecilia A.

Armesto, Juan J.

Torrealba, Cristian

Carmona, Martín R.

In unpolluted regions, where inorganic nitrogen (N) inputs from the atmosphere are minimal, such as remote locations in southern South America, litterfall dynamics and N use efficiency of tree species should be coupled to the internal N cycle of forest ecosystems. This hypothesis was examined in two evergreen temperate forests in southern Chile (42°30'S), a mixed broad-leaved forest (MBF) and a conifer forest (CF). Although these forests grow under the same climate and on the same parental material, they differ greatly in floristic structure and canopy dynamics (slower in the CF). In both forests, biomass, N flux, and C/N ratios of fine litterfall were measured monthly from May 1995 to March 1999. There was a continuous litter flux over the annual cycle in both forests, with a peak during autumn in the CF. In the MBF, litterfall decreased during spring. In both forests, the C/N ratios of litterfall varied over the annual cycle with a maximum in autumn. Annual litterfall biomass flux (M