



Woodland Soils in SE Australia: Phosphorus Islands in a Phosphorus Depleted Landscape

Vanessa Lonergan (1) and Brian Wilson (2)

(1) School of Environmental and Rural Science University of New England, Armidale, NSW 2351 Australia, (2) NSW Office of Environment and Heritage, Armidale, NSW 2351 Australia

By international standards, Australian soils are inherently low in Phosphorus and have been further depleted through historical agricultural practice. A range of soils were examined across a land use intensity gradient on a basalt landscape of the Northern Tablelands of NSW. Land-uses included cultivation, pasture and relatively undisturbed woodland systems. We measured extractable P, total P, organic P, organic Carbon and pH and their distribution through the soil profile relative to the land use intensity. Extractable P concentration was significantly higher in the woodland systems compared to the non-wooded sites and woodland soils had larger total phosphorus compared to the more intensively managed sites particularly in the surface horizons. Organic phosphorus as a proportion of the total was also higher in the woodland soils. Concentration and proportion of organic P were strongly related to soil carbon concentration, pH and management intensity. Our data demonstrate that these relatively undisturbed woodland systems represent phosphorus “islands” in a phosphorus depleted landscape.