

Microbial communities responsible for dissimilatory nitrate reduction to ammonium (DNRA) in a rainforest soil

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Dissimilatory nitrate reduction to ammonium (DNRA) is the process by which nitrate and nitrite are reduced to ammonium by microorganisms. DNRA in soil is important because it allows nitrogen to be conserved as NH_4^+ in highly reducing conditions, in contrast to denitrification, where nitrogen is lost as N_2O and N_2 . Although it has sometimes been assumed that DNRA does not play a significant role in soil nitrogen transformations, there is increasing evidence that DNRA is important in many soils, particularly forest soils under highly reducing conditions where there is a high C/ NO_3^- ratio. In this study, soils from a rainforest gully in Victoria, Australia were incubated at 60% and 100% water holding capacity. ^{15}N labelling techniques were used to quantify gross N transformation rates and to evaluate the importance of DNRA for each treatment.