Our objective was to detect possible differences in N fertilization responses of soil extracellular enzymes in plots dominated by trees that associate with arbuscular mycorrhizal fungi (AM) or ectomycorrhizal fungi (ECM). To do this, we established a plot network of 6 AM and 6 ECM dominated (>65% diameter at breast height) 10 x 10 m plots in the lower elevation hardwood zone of both the reference and N fertilized watersheds (N=24 plots) at Bear Brook Watershed, in Maine USA. We assayed the potential activity of hydrolytic enzymes that release N (﻿N-acetylglucosaminidase; NAG), phosphorus (acid phosphatase; AP), and simple carbon (ß-glucosidase; BG). In addition, we measured microbial allocation to complex C degrading oxidative enzymes phenol oxidase and peroxidase. The activities of these enzymes were measured separately in bulk mineral, rhizosphere, and organic horizon soils during the growing season in 2016.