ERRATUM

In our recent paper, "Regulation of fine root dynamics by mammalian browsers in early successional Alaskan taiga forests", Ecology 79(8) 2706-2720, we reported data on fine root mortality that were consistently lower than true values. While our program accounted for roots that passed directly from live to missing between consecutive imaging dates of the minirhizotron tubes, the program did not accurately incorporate the lengths of these roots into estimates of total mortality. This error does not affect our productivity data or the fine root survival and decomposition estimates derived from MARK. Here we briefly review the revised mortality values along with revised and additional figures.

The correct relationship between monthly rates (mm fine root $tube^{-1}$ 30 d^{-1}) of fine root production (FRPROD) and mortality (FRMORT), when averaged across all sites, treatments and tubes (winter mortality entered as per period) is FRMORT = 469.87 – 84.47 * ln (FRPROD), $r^2 = 0.48$, $P < 0.05$, with greatest rates of mortality occurring in fall and winter (Fig. 1. revised).

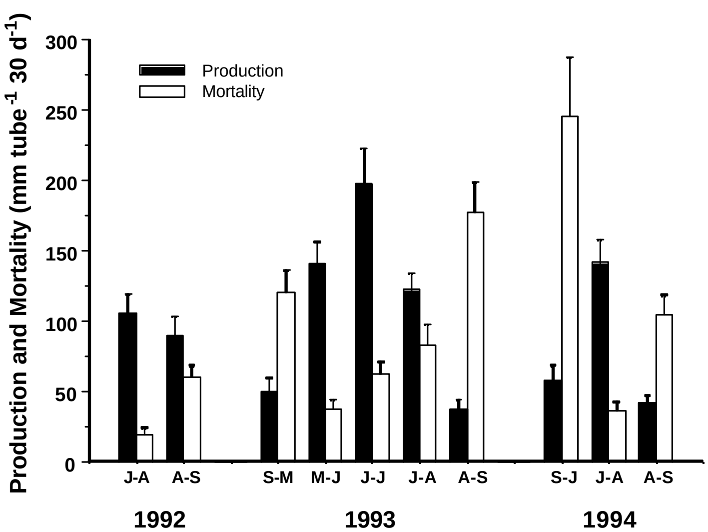

Fig. 1. Fine root production and mortality measured over 10 time intervals from 1992 through 1994, averaged across all sites and browsed and unbrowsed stands (J = June in both 1992 and 1994). All values are expressed as mm root length per minirhizotron tube per 30 d (+ 1 SE), except overwinter mortality values, which expressed per actual period length.

Herbivory reduced average monthly rates of fine root production ($F_{1,2} = 39.16$, $P = .02$) and mortality ($F_{1,2} = 21.62$, $P = 0.04$) to a similar degree (-33% and –31%, respectively), but significant effects of herbivores on monthly mortality rates were fewer than for production (Fig. 4b. revised). Over-winter mortality during 1993-1994, immediately following the growing season with unusually low precipitation, was more than double that of the previous winter.

Annual fine root mortality averaged 343.80 ± 31.71 mm $tube^{-1}$ yr^{-1} across all treatments, sites and years, changing the relationship between production and mortality (Fig. 3. revised) to $Y = 1.001\ X$, $r^2 = 0.89$, $P < 0.001$. Variations in annual mortality among years ($F_{2,69} = 57.70$, $P < 0.0001$) and sites ($F_{2,2} = 9.54$, $P = 0.09$), and reductions due to herbivory ($F_{1,2} = 29.94$, $P = 0.03$)

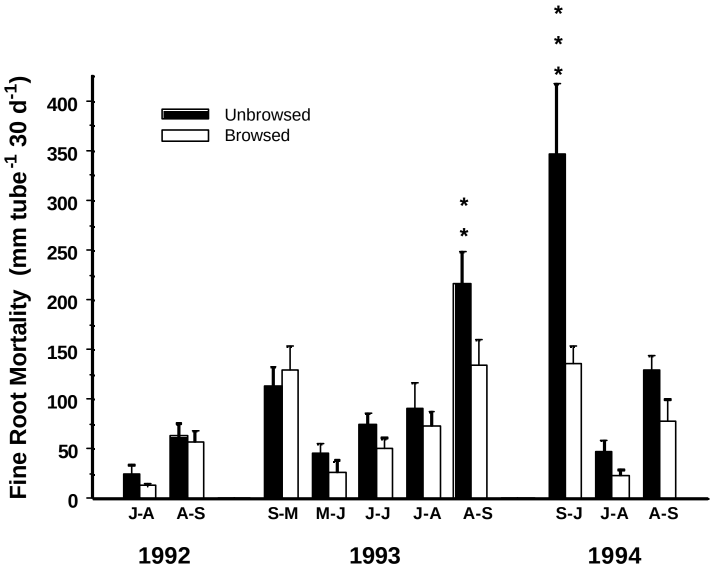

Fig. 4b. Fine root mortality for browsed and unbrowsed stands measured over 10 time intervals from 1992 through 1994, averaged across sites. All values are expressed as mm root length per minirhizotron tube per 30 d (+ 1 SE), except over winter values, which are expressed per actual period length. Asterisks identify significant effects of browsing by time period: $^{*}P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

all closely paralled productivity patterns (Fig 2. revised). Annual fine root mortality of browsed plots (262.48 ± 29.56 mm tube^{-1} yr^{-1}) was significantly less than that of unbrowsed plots (419.69

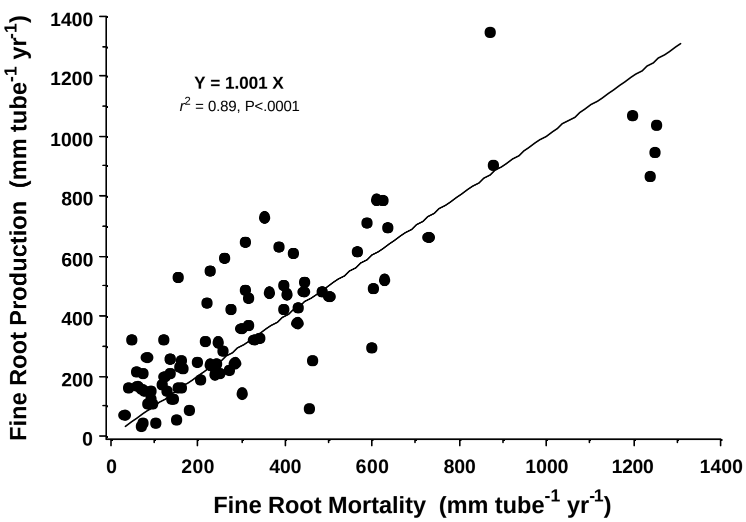

Fig. 3. Relationship between annual fine root production and mortality. Each point represents one minirhizotron tube for one year.

± 52.61 mm tube^{-1} yr^{-1}). These effects were greatest during 1993 ($F_{browsing*year} = 7.2$, df = 2, 69, $P = 0.0015$) but did not differ among sites ($F_{browsing*site} = 0.57$, df = 2, 69, NS). Slopes of the

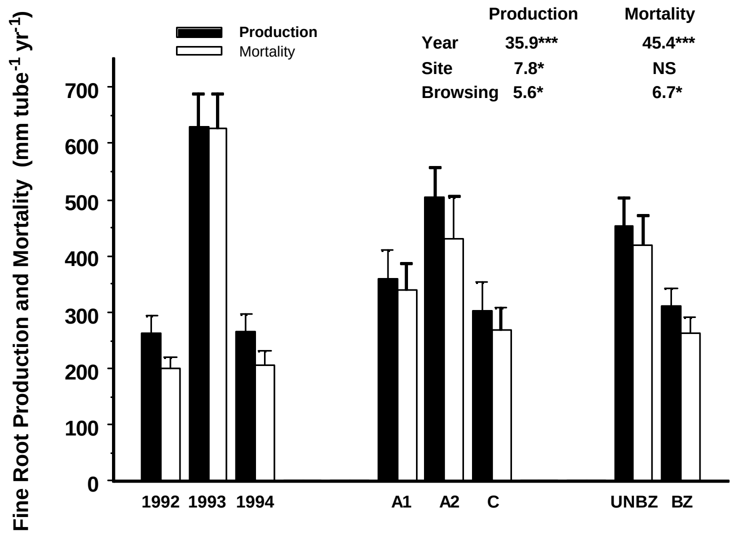

Fig. 2. The effects of year, site, and browsing on annual fine root production and mortality. All values are expressed as mm root length per minirhizotron tube per year (+ 1 SE). ANOVA inset lists percentages of variance explained by main effects: $^{*}P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

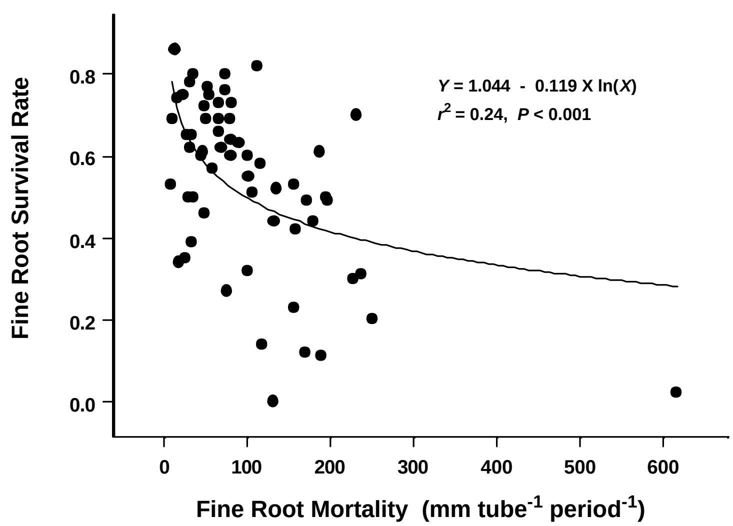

Fig 8. Relationship between fine root survival (ϕ_t) derived from MARK, and fine root mortality. Each point represents an average for each browsed and unbrowsed plot at each site for each time period. Removal of the outlier linearizes the relationship to $Y = 0.686 - 0.002X$, $r^2 = 0.25$, $P < 0.001$.

relationship between annual mortality and production did not significantly differ between browsed and unbrowsed plots.

Corrected mortality values only slightly change profile patterns previously reported. As a percentage by depth, annual mortality averaged: 0-20 cm, 50.65 ± 2.50%; 20-40 cm, 23.55 ± 2.25%; 40-60 cm, 14.05 ± 1.55%; 60-80 cm, 8.12 ± 0.98%; 80-100 cm, 3.62 ± 0.99%.

The revised mortality values also account for a significant inverse relationship between fine root survival rate per period (ϕ_t), estimated using MARK, and fine root mortality (mm tube^{-1} period^{-1}) (Fig. 8.). As we point out in the paper, this relationship is expected to have poor predictive power. This is because low longevity could translate to either high or low mortality depending on the number of roots that die, and vice versa. For example, browsed and unbrowsed plots had extremely low, nearly identical survival rates over the 1993-1994 winter (Fig 6a, b, c), yet mortality of unbrowsed plots averaged 2.5 times that of browsed plots over the same time interval (Fig. 4b.).