# Dynamics of Aspen Root Biomass and Sucker Production Following Fire[1]

**Roy A. Renkin[2] and Don G. Despain[3]**

***Abstract***—*Changes in preburn aspen root biomass 8 years following prescribed fire were analyzed for five experimental sites distributed across a moisture gradient. Total root biomass decreased across all sites but was proportionately greater in xeric than mesic sites. Response of post-burn aspen suckers to ungulate browsing varied according to site and treatment. Browsing influenced the age class structure and height growth, but had no influence on stem density, in aspen occurring on more mesic sites. Aspen occurring on the more xeric sites responded differently, with the extreme case being the almost total elimination of one site as a result of burning and browsing. Aspen sucker biomass production of protected plots, measured as the ratio of current annual biomass versus prior year biomass accumulation, revealed wet site aspen to differ from drier sites and suggests production over the long term may be more influenced by site conditions than other extrinsic factors. Aspen suckers 1–4 meters in height and protected for 8 years were quickly reduced to <1 m when exposed to browsers, suggesting height growth alone is not sufficient to guarantee escape from browsing. Eleven years of 100% annual biomass removal via clipping on one of the mesic sites demonstrated that biomass removal alone is not sufficient to eliminate aspen from the site.*

[1]Authors chose to submit abstract in the place of full report.

[2]National Park Service, Yellowstone National Park, WY.
[3]USGS-Biological Resources Division, Department of Biology, Montana State University, Bozeman, MT.