



Distribution of red wood ant (*Formica rufa* group) mounds in Yellowstone National Park: are these species important for ecosystem properties?

Anita C. Risch (1), Martin F. Jurgensen (2), Andrew J. Storer (2), Michael D. Hyslop (2), Martin Schütz (1)

(1) Swiss Federal Institute for Forest, Snow and Landscape Research, Zuercherstrasse 111, 8903 Birmensdorf, Switzerland (anita.risch@wsl.ch and anita.risch@gmx.net), (2) Michigan Technological University, School of Forest Resources and Environmental Sciences, 1400 Townsend Drive, Houghton MI 49931, USA

Red wood ants (*Formica* s.str) are ubiquitous in many conifer and mixed-conifer forests of northern Europe and Asia. In contrast, even though twenty-four different ant species are placed within the North American *Formica rufa* group, relatively little is known on the abundance and distribution of these ants in North American ecosystems. Information on forest types and conditions that favor the *Formica rufa* group in North America, and their ecological role within these forests is rare. Since ants are important components of most soil invertebrate communities and are considered ecosystem engineers that alter the flow of energy and nutrients through terrestrial systems, it is important to gain a better understanding of the distribution of red wood ants in North America and of the factors that might be important in regulating their abundance. To gain baseline information on the distribution of these insects, we conducted a survey for red wood ants in one of the most pristine North American ecosystems, Yellowstone National Park. Within Yellowstone, human disturbance has been kept to a minimum during the last 100 years, but fire and predators are still abundant. Covering 210 miles of trail and 310 miles of road we detected 85 red wood ant mounds. Elevation, annual precipitation, forest type and time since last wild fire were found to be important factors in explaining the distribution of these insects in the park. However, the density of ant mounds was low and individual mounds were fairly small. Consequently, these ants likely have considerably less impact on ecosystem processes in Yellowstone National Park compared to red wood ants in European or Asian forests.