

ECOLOGICAL IMPACTS OF FIRE PLACE USE AND APPROACHES TO VISITOR MANAGEMENT

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Abstract

Recreational activities in forests, for example picnicking and grilling and in particular the creation and usage of fire rings outside official picnic sites ("wild" fire rings), can cause extensive damage to soil and vegetation. At frequently used fire places we found reduced species densities in the ground vegetation and shrub layer and changes in plant species composition. Picnicking and grilling also reduced the height and changed the age structure of shrubs and young trees. Firewood collection depleted woody debris, leading to a loss of habitat for specialized organisms. Short- and long-term human trampling also affected soil microbial biomass (C_{mic} and N_{mic}) and activities of enzymes involved in nutrient cycling.

In order to develop and implement measures, it is important to find out why forest visitors create and use "wild" fire rings instead of official picnic sites. A forest visitor survey focusing on visitor preferences concerning fire places revealed a preference for fire places near streams, away from forest roads and close to open spaces. While some visitors highly appreciated the well-equipped official sites, others preferred more natural infrastructure with pieces of stones forming a fire ring rather than concrete rims, and logs to sit on instead of benches. An experiment was conducted with four new fire places designed to fulfil forest visitors' requirements, and a follow-up survey documented visitors' reactions. These experimental fire places consisting of a ring of stones and logs fulfilled the needs concerning infrastructure of visitors who normally use "wild" sites. However, the location of fire places was termed more important than their infrastructure.

Key Words

fire places, firewood collection, forest visitor preferences, human trampling, soil enzyme activities

Key References

- Amrein, D., Rusterholz, H.-P., Baur, B. 2005. Disturbance of suburban *Fagus* forests by recreational activities: Effects on soil characteristics, above-ground vegetation and seed bank. *Applied Vegetation Science* 8: 175-182
- Hegetschweiler, K.T., Rusterholz, H.-P., Baur, B. 2007. Fire place preferences of forest visitors in northwestern Switzerland: Implications for the management of picnic sites. *Urban Forestry & Urban Greening* 6: 73–81
- Hegetschweiler, K.T., Skorupinski, A., Rusterholz, H.-P., Baur, B. 2007. Die Bedeutung der Erholungsnutzung des Waldes am Beispiel von Picknicken und Grillieren: Ergebnisse einer gesamtschweizerischen Umfrage bei Forstfachleuten und Waldeigentümern. *Schweizerische Zeitschrift für Forstwesen* 158: 39–49