ASSESSING THE (RE-)INTRODUCTION OF FIRE INTO THE SWISS NATIONAL PARK: IMPLICATIONS AND CHALLENGES

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ABSTRACT

Swiss federal law protects all natural processes occurring within the borders of the Swiss National Park. Naturally caused wildland fires are counted among natural processes and should not be suppressed. Strict nature protection and conservation represent the primary goals of the Swiss National Park (IUCN category 1) and thus no treatment measures may be undertaken unless the park's very existence is at risk. On the other hand, the leasing contracts between the park and land-owning communities specify that the park is liable for any damage from within its borders that affects third parties. In the case of an escaping fire, critical situations—potentially harming human values—could easily occur, as the Swiss National Park covers only about 170 km^2 (0.41% of Switzerland) and is closely inter-linked with the cultivated and inhabited areas. The park is situated in the southeast of Switzerland in the midst of the Engadine Valley—a dry, inner alpine valley, rather densely populated and a top tourist area all year round. Therefore, wildland fires are not exactly popular! This situation has initiated forest fire research by the group that runs the GIS of the Swiss National Park at the Department of Geography, University of Zurich. The overall goal is to support the park authorities with wildland fire management strategies that meet both the requirements of the park as well as the needs of the surrounding communities and inhabitants. One of the important ongoing research topics is the investigation of the fuel situation in the park and its surroundings. Several "classical" fuel models have been established that describe the typical forest vegetation types of the area. To a large extent the forests show a boreal character and are dominated by *Pinus mugo* species (i.e., *P. m. grex arborea* [also referred to as *Pinus montana*] and *P. m. grex prostrata*). *Pinus silvestris*, *Picea abies*, *Larix decidua*, and *Pinus cembra* are also present, their densities depending on altitude, slope, and aspect. The predominant geology consists of dolomite limestone, producing meager soils that favor pioneer vegetation in general. In this context it is noteworthy that none of the forests are primary forests. Like everywhere in the Alps, intensive logging activities have been going on for centuries. The now-existing park forests have been re-growing unattended following large clearcuts in the early 19th century, and no management activities have been performed since the park was established in 1914. However, it is unclear to what degree fuel is accumulating to critical amounts. Hence, the present study investigates the fire proneness of the forests and assesses the feasibility of (re-)introducing fire to the now-existing ecosystems in the Swiss National Park. As prescribed burning techniques are not common, other management measures such as selective logging or clearing of the understory vegetation close to roads are also considered. The overall objective is a "close-to-nature" fuel management approach that integrates natural disturbances and societal restraints alike.

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