



Prescribed fire as an alternative measure in European grassland conservation

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There are contrasting opinions on the perspectives of prescribed burning management in European grasslands. One hand, prescribed burning can be effectively used with relatively low implementation costs for the management of open landscapes, the reduction of accumulated litter or for decreasing the chance of wildfires. On the other hand burning can also have serious detrimental impacts on grassland ecosystems by promoting the dominance of some problem species (e.g. some competitors or invasive species) and by threatening endangered plant and animal species, especially invertebrates, thus, inappropriate burning can result in a loss of biodiversity in the long run. Our goal was to review the publications on the application of prescribed burning in European grasslands considering general (e.g. timing, frequency and duration) and specific (e.g. types of grasslands, effects on endangered species) circumstances.

Even prescribed burning forms an integral part of the North-American grassland management practice, it is rarely applied in Europe, despite the fact that uncontrolled burning occurs frequently in some regions. According to the North-American experiences prescribed burning can be a viable solution for biodiversity conservation and can be a feasible solution for several nature conservation problems. We reviewed prescribed burning studies from Europe and North-America to identify findings which might be adapted to the European grassland conservation strategy.

We found that not only the application of fire management is scarce in Europe but there is also a lack of published studies on this topic. European studies – contrary to the North-American practice – usually used yearly dormant-season burning, and concluded that this burning type solely is not feasible to preserve and maintain species-rich grasslands. In North-American grasslands, application of burning has a stronger historical, practical and scientific background; it is fine-tuned in terms of timing, frequency and generally combined with other measures, such as grazing, seed sowing or herbicide application. By this complex approach several nature conservation goals can be fulfilled like increasing landscape-scale heterogeneity and invasion control. We emphasize that for establishing a fine-tuned prescribed burning management plan for the European grasslands the general findings of carefully designed case studies should be combined with the practical knowledge of conservation managers concerning the local application circumstances to reach specific management objectives.