

# Problems of Using Fire in Nature Reserves<sup>1</sup>

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THE Federal Republic of Germany in an area of 248,546 km<sup>2</sup> contains about 960 nature reserves, 282,000 hectares in extent. That is only 1.13 percent of the total area. Two hundred nature reserves are less than 5 ha in size. The areal size of 51 nature reserves varies between 200–1000 ha, of 19 between 1000 and 5000 ha, only 11 nature reserves are larger than 5000 hectares. The many small nature reserves are ordinarily situated in spacious landscape controlled areas in Germany. These landscape controlled areas include about 18 percent of the total acreage of the Federal Republic of Germany populated with 60 million inhabitants.

The use of fire in nature reserves and landscape controlled areas is not allowed on principle. Outside protected areas it is not allowed during the time between March 15 to September 15 to burn off the acreage along hedges, field ridges, and reed banks. There are attempts in the process to also establish a prohibition for the limited winter time, in which fire may be used in the landscape. This is happening at a time, when it is predictable that in the near future 300,000 ha of land will be withdrawn from economic use. They can only be forested partly. The prohibition of fire in the countryside has historical roots; it was to fight an old habitat of farmers

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who burned off hedges and field ridges in the spring. In many parts of the German landscape the hedges are a provincially determined factor. These hedges were originally established for the marking of property boundaries. Their ecologically important function within the landscape structure was determined only later. Even today the hedges in an intensively used tilled landscape are important, often the only refuge places for the free living animals during winter and spring. It is understandable, that through the prohibition of the burning of the ground surface during the spring months which are so critical to the animal world, additional cover and protection was to have remained preserved.

The prohibition to burn in the country-side introduced about 50 years ago has erected a psychological barrier, which even today still makes it almost impossible, even among specialists of nature protection, to find followers for controlled burning in nature reserves. The challenges of Tüxen, raised already in 1970, to open experimental areas for the use of fire, have consequently remained without reply until now. Uncontrolled appearing fires in nature reserves show time after time, how positive the effect of fire can be on the scenery and the maintenance of certain animal and plant species. There exists, however, a hesitation to change these observations into well planned practical application. This is also partly due to reasons which are to be found when looking at the ownership structure of German nature reserves. These areas are predominately in private ownership. Since the farmers are prohibited to burn off hedges and field ridges outside the nature reserves, the owners—so is argued—wouldn't understand when fires were started within the nature reserves by the administration.

Up to now no research exists in West Germany to determine the number of nature reserves in which it is necessary to introduce the regular use of fire for botanical reasons. But since about 80 percent of all nature reserves was put under protection for botanical reasons, their number should be considerable. But also for zoological reasons the use of fire has become an immediate necessity in a number of nature reserves. Especially some bird species are to be mentioned, which require for their courtship and incubation behavior short-

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grass vegetation types (for example *Numenius arquata*, *Philomachus pugnax*, *Pluvialis apricaria*, and *Lyrurus tetrix*). The problem of searching for new methods of vegetation controls becomes acute in areas where grazing is being phased out. Individual experiments, to keep down the growth by chemical methods, have so far led to no lasting successes.

Some attempts in the north German area to use fire in nature reserves for reasons of a purposeful landscape management failed since weather conditions (too wet and foggy spring months) didn't allow burning of the areas.

Presently the following factors hinder a determined use of fire in nature reserves:

The private ownership conditions,

The lack of proper experience in the use of fire,

The lack of experimental plots selected from scientific methods,

The unpredictable weather conditions in spring,

A psychological based hesitation to recognize the necessity of the use of fire in nature reserves.

To break down these barriers it will be attempted to introduce a determined and broadly based information program, for the present with the help of a television film.