NOTES AND COMMENT

Soil Alkalinity on Recent Burns

During late July and early August, 1926, the Kaniksu National Forest in northern Idaho experienced its most severe fire damage since the advent of the white man in that region. About 125,000 acres were burned as a result of the conflagrations. The destroyed forests consisted largely of western white pine (*Pinus monticola*), western larch (*Larix occidentalis*), Douglas fir (*Pseudotsuga taxifolia*), lowland white fir (*Abies grandis*), western red cedar (*Thuja plicata*), and western hemlock (*Tsuga heterophylla*). The ground cover, typical of the western white pine type, had as key species *Linnea borealis, Coptis occidentalis, Tiarella unifoliata, Viola blanda,* and *Pachystima myrsinites.* Following the burn these were supplanted by *Chamaenerion angustifolium, Marchantia polymorpha, Funaria hygrometrica, Rubus parviflora,* and *Spiraea densiflora.*

In August, 1927, the hydrogen ion concentration of the soil was determined at 60 localities scattered throughout the one-year-old burn. The measurements were taken with a La Motte Indicator field set. The results in 58 cases out of 60 indicated pH values between 7.0 and 8.0. The two instances of acid reactions were at spots in which the duff and humus had been merely scorched. In 56 of the remaining 58 cases the organic soil had been consumed. The number of measurements falling in each pH class is shown in Table I.

Table I. *Soil Reactions on Large Burns of July–August, 1926, Kaniksu National Forest, Idaho, August, 1927*

pH Values	Descriptive Term	Number of Occurrences
6.5	Minimacid	2
7.0	Neutral	14
7.5	Minimalkaline	15
8.0	Subalkaline	29
	Total	60

It is interesting to note that the water of Granite Creek gave a reaction of pH 7.3. The stream above the point where the water was tested has a drainage basin of 41,000 acres, of which 67 per cent was burned in 1925 and 1926.

It is a well recognized fact that forest soils are normally acid. The logical explanation for this alkaline character of recent burns lies in the alkalinity of wood ashes. The practice of obtaining lye by burning the timber after clearing the forests was one of the important Colonial industries of North America. It is, therefore, not surprising that the lye unintentionally manufactured by the vast fires of 1926 created a marked alkalinity in the soil.

It is suggested that such alkalinity may contribute to the scarcity of reproduction in the western white pine type during the first two or three years following large fires, until leaching has removed the lye from the soil.

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