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Post-settlement land uses and their effects on the Cedarburg Bog

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POST-SETTLEMENT LAND USES AND THEIR EFFECTS ON THE CEDARBURG BOG

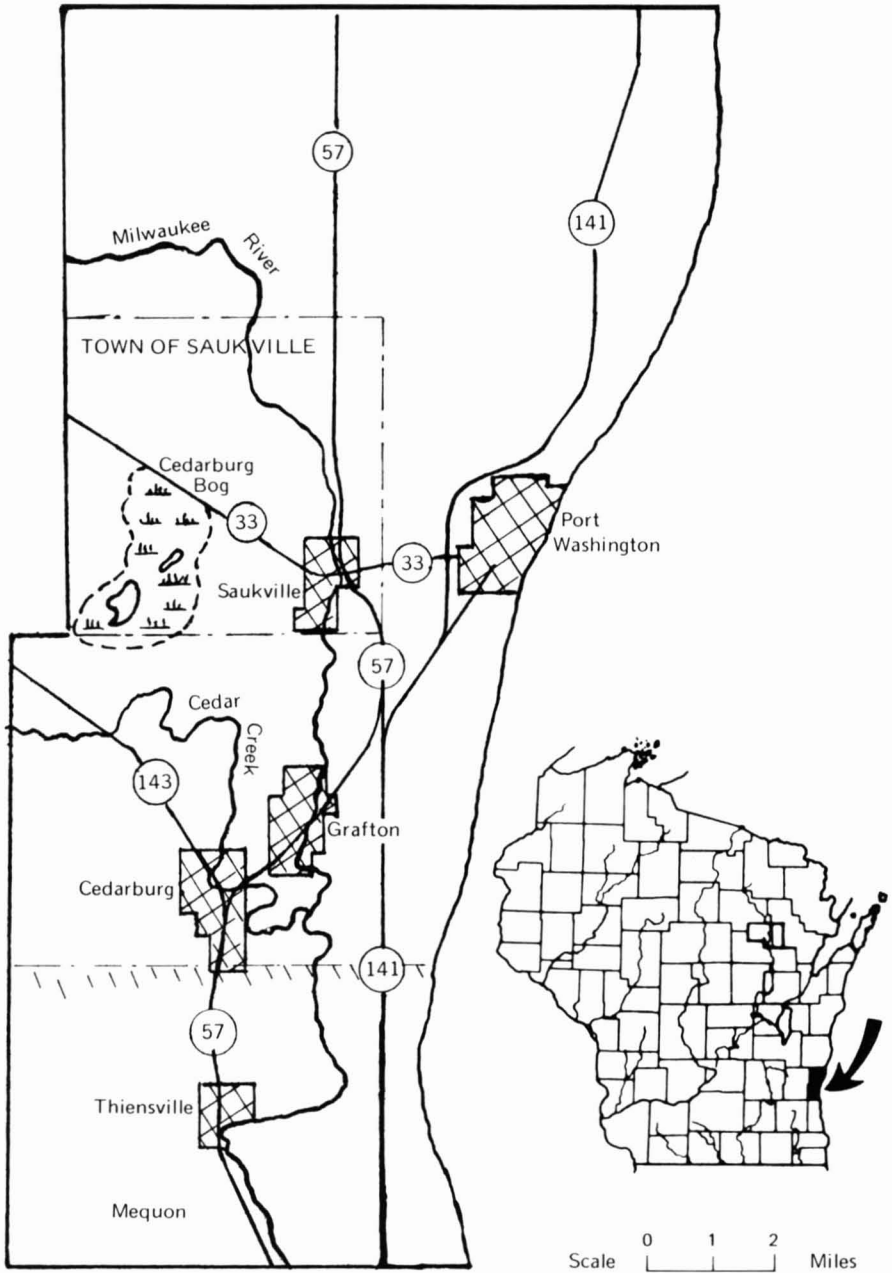
During a study of the plant species of a lowland hardwood stand at the western edge of the Cedarburg Bog (Farley, 1973), it was noted that significant environmental changes had occurred here and throughout the bog which resulted in the present-day vegetation patterns. Many of these changes can be attributed to the various post-settlement land-use practices which were employed in the Town of Saukville (T11N, R21E), Ozaukee County, Wisconsin, where this bog is located. To document this information a literature survey was made of the various studies which have been carried out in this area (Cutler, 1936; Grittinger, 1969; Krauskopf, 1972; Farley, 1973; Meyer, 1973), land records were checked and several long-time residents of the area were interviewed to corroborate these land practices and their effects on the bog. It is hoped the data compiled in this report may be of value in future studies of the biota of this area.

The pertinent historical events may be conveniently considered in several periods:

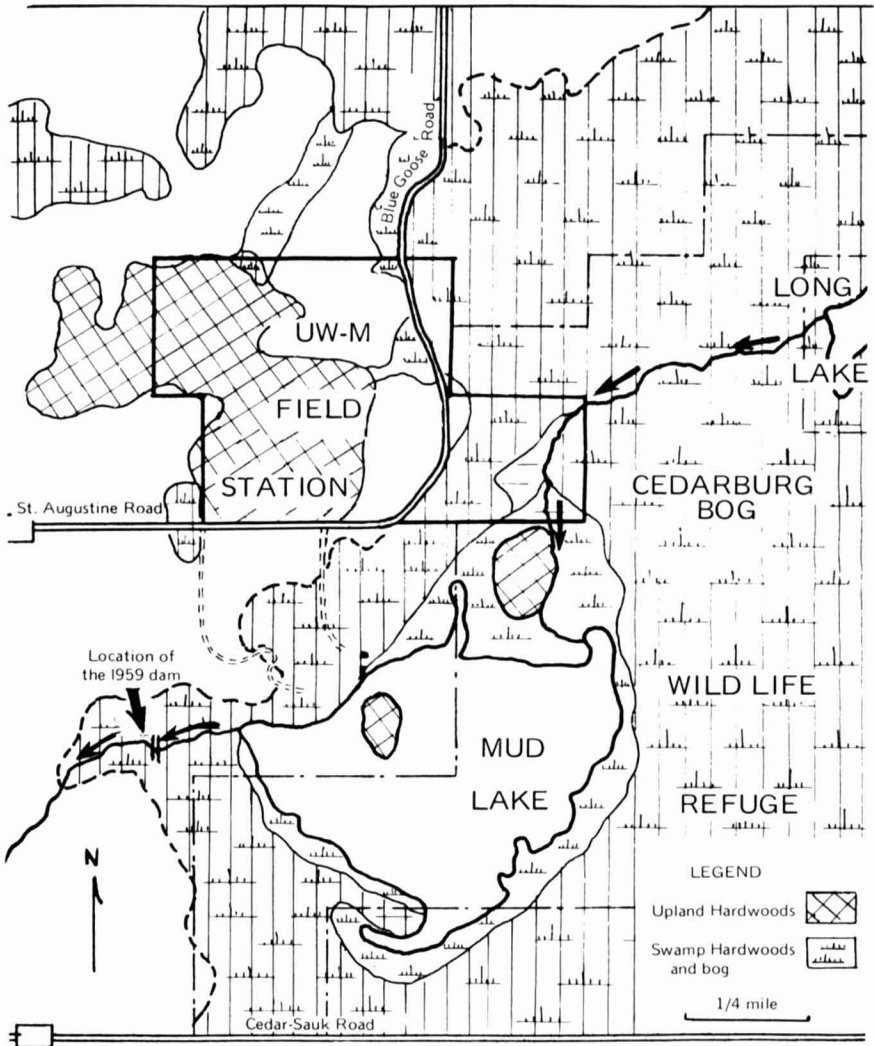
EARLY SETTLEMENT PERIOD, 1834-1860

The earliest settlers arrived in the Town of Saukville soon after the land surveys were completed (Mulett and Brink, 1834; Burt, 1835). According to Krauskopf (1972), the earliest entries recorded in the County Land Office were made in the years 1834-1837, with the first settlers homesteading on the well-drained uplands adjacent to the Milwaukee River in the eastern part of this township. By 1849 all of the uplands were settled and by 1858 most of the lowland areas were claimed. Only the central and southwestern portions remained unclaimed, chiefly because this area was occupied by the large bog, known as the "Cedarburg Bog," "Saukville Swamp" or "Thousand Acre Swamp," which was considered worthless for agriculture. The location of this bog is shown on Map 1. The name "Cedarburg Bog" is used in this report because of the long-time familiarity with this designation by the authors.

During this period most of the uplands, which consisted of stands of maple, beech, oak, basswood and ash trees, were logged off and the level areas cleared for cropland while the steeper slopes were usually pastured. Only a few of these original wooded areas survive today, one of which is a 60-acre tract on the property of the UWM Field Station. Many marshy areas also were drained at this time, a common practice to increase the acreage of tillable land. Although the bog was not directly affected by these activities, it is probable that land clearing created an "edge-effect" along the margins which enabled non-native species of plants, particularly weeds, to gain access to it.



Map 1. Location of the Cedarburg Bog and the Town of Saukville in relation to the environs of Ozaukee County, Wisconsin



Map 2. A portion of the Cedarburg Bog showing its drainage (arrows) and relationships to the UWM Field Station and adjacent roads.

BOG EXPLOITATION PERIOD, 1860-1930

After 1860, adjacent landowners acquired portions of the bog for its timber resources. At first the logging was confined to the margins of Cedarburg Bog, but later, sometime prior to 1900, Cedar-Sauk, Blue Goose and St. Augustine Roads were constructed and logging was intensified. The location of these roads is shown on Map 2. Trees from the bog were cut and used in the building of these roads. Similar roads were constructed throughout Wisconsin during these years and were known as corduroy roads.

Most of the cutting, chiefly of tamarack and white cedar trees, was done during the winter time and the logs were used for house and barn construction and for fuel on the farms in the immediate area. A barn on the Homer Lynn property and the house and barn on the former McFarland property (now a part of the UWM Field Station) contain beams hewn from tamarack trees which were 60-90 feet tall and over 12 inches in diameter. White cedar logs were also used for fence posts. Similar uses of tamarack and white cedar logs for house and barn construction in the Lawrence Lake area in Michigan were described by Rich (1970).

A large number of trees also were cut to supplement the income of farmers who sold them for fuel to operators of lime kilns in the Town of Grafton. One of the long-time residents remarked that his father would haul 25-30 cords of wood each winter and received a price of three dollars per cord. Most of the trees cut for this purpose were tamaracks because, as this resident said, "they burned rapidly and with a high heat."

Records of the Smith Brothers' Fisheries of Port Washington show this company obtained trees from the bog, in the years 1927-1929, for pilings, referred to locally as "fish spilings," which were driven into the offshore area along Lake Michigan to anchor fish nets. The trees used were reputed to be 60-90 feet in height.

Two other events during these years had significant effects on the bog. In the years 1895-1905 attempts were made to straighten and deepen the outlet stream to lower the level of Mud Lake, the largest lake in the bog, to provide an easier access for timber harvest and to convert the lake to cropland. The enterprising group, known as the Forsteria Investment Company, which attempted this operation also considered using the lake as a muskrat rearing area. Fortunately the structural basin of the bog prevented complete drainage and the projects were abandoned. However, this drainage resulted in lower water levels throughout the bog, a condition which persisted for nearly 40 years and enabled some swamp hardwood trees to invade and become established along the edges of the bog (Farley, 1973). The other significant event was the introduction of the larch sawfly (*Pristiphora erichsonii*), sometime before 1924, which caused considerable destruction of tamarack trees. Some dead trees remain from this epidemic; however, this insect has not been a serious pest since that date and the second growth of tamaracks appear to be doing quite satisfactorily despite some later setbacks

because of high water levels and the outbreak of another insect, the bark beetle (*Dendroctonus simplex*) Grittinger, 1969).

DROUGHT PERIOD, 1930-1959

Limited winter logging operations continued during the 1930's and 1940's, chiefly along the northwestern, northern and southern portions of the bog. The acquisition of over 500 acres in the central part of the bog by the Wisconsin Department of Natural Resources in 1946 together with a decline in the value of tamarack trees resulted in almost a cessation of timber cutting by 1950.

The decrease in tamarack growth may have been the consequence of the low water levels which resulted from the drainage operations of 1895-1905, together with the severe droughts which occurred in the mid-1930's, especially in 1934. Mud Lake, which is over 200 acres in extent, and probably the other lakes almost became marshes (Cutler, 1936). Tree ring studies (Farley, 1973) indicate that in the mid-1930's to 1959 such trees as the American elm, black ash and silver maple showed rapid growth, while the tamarack and white cedar trees recorded poor growth. However, it is probable that the tamaracks and white cedars invaded formerly wetter areas elsewhere in the bog basin.

PRESENT PERIOD, 1959-1973

In 1959 a dam was constructed on the outlet stream which resulted in a rise in the water level throughout the Cedarburg Bog basin. Mud Lake was again reflooded as were the other lakes, and many marshes adjacent to the bog also contained standing water. Mr. James McFarland, the previous owner of the farm which is now a part of the UWM Field Station, mentioned trapping muskrats in his barn which was located near one of these small marshes. This high water level was the probable cause of the decimation of many of the swamp hardwood trees that had become established during the time of low water levels and drought. The tamaracks that invaded the shores of the lakes during the periods of low water also were "swamped" and many of them died or were weakened to the extent that they were subject to attack by the bark beetle. Control efforts by the Wisconsin Department of Natural Resources during the years 1960-1965 were successful in keeping the damages of this insect to a minimum. The dam was destroyed in 1961; however, the water level was lowered only slightly because of the average or above average annual rainfall patterns since that date.

During the 1960's and the early 1970's the increased rainfall and the absence of any significant man-induced changes are reflected in only slight vegetation changes. The tamarack trees, which are slow-growing (Meyer, 1973) and despite some setbacks caused by the bark beetle, appear to be increasing slightly as indicated by some reproductive understory appearing in many sites. In contrast, such trees as the American elm, black ash and silver maple show few signs of any increase in numbers (Farley, 1973). The Dutch Elm disease which reached this area after 1959 (Grittinger, 1969) may be a contributing factor for the lack of young growth of elm trees, while the higher water level, undoubtedly,

is restricting the black ash and silver maple reproduction to the better drained soils along the borders and to areas of higher elevation in the bog.

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