HISTORY OF FIRES ON THE KENAI MOOSE RANGE

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The Kenai National Moose Range on the Kenai Peninsula, Alaska was established in 1941 to insure perpetuation of the giant Kenai moose, other wildlife, and fish, scenic and recreational resources. The range extends from the Cook Inlet on the west to the Kenai Mountains on the east. A total of 1,730,000 acres. The Moose Range is divided into two very distinct physiographic sections. Its western 2/3 constitute the Kenai lowlands, composed of low ridges, rolling hills and muskegs dotted with more than 1200 lakes and 160 miles of major streams. The Kenai Mountains in the eastern 1/3 of the range rise to elevations of 6,000 feet with many glaciers and the Harding Ice Field.

Vegetation changes correspondingly. The lowlands are composed of spruce, aspen and birch interspersed with bogs and muskeg. Tree line is approximately 1800 feet and woody vegetation is replaced by alpine tundra, rock and glaciers.

The lowlands of the Kenai Peninsula provide the main winter habitat for moose and have been changed radically by fire. Before the 1890's the range was primarily stone caribou country, but widespread fires created conditions more favorable to moose, which thrive best on early stages of succession. By 1910 caribou, except for small isolated herds, had disappeared and the Kenai became famous for its large herds of the giant Kenai Moose.

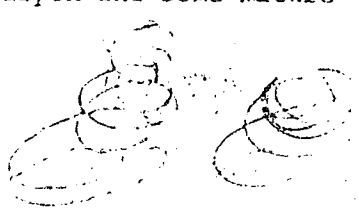
Climax species for the lowlands of the Kenai is generally white spruce on the well drained sites and black spruce on the poorly drained sites. Decidous species represent various transitional stages toward climax forests. Fires, both large and small tend to set back succession to a level more favorable to the moose.

There have been hundreds of small fires occurring on the Kenai since time began but in recent years there have been several that have provided the main source of winter brouse. The first of these large fires occurred in the 1890's. This was the one that burned the tundra allowing woody plants to germinate and eventually make the Caribou all but disappear. There is no acreage figure for this fire but gold miners and furtraders report seeing fire all summer in 1893. Our timber inventory that is being done at the present indicates much of the timber as being about 90 years old. This seems to indicate that most of the tree species owe their origination to the fires in the 1890's.

1890
+ 90
1980

Had a lot 1880-1870

What is regarded as the biggest factor in increasing moose herds to their highest levels is a fire that started from road construction in early July, 1947. This fire burned unchecked for 6 weeks until it was finally extinguished by rains. A total of 310,000 acres in the heart of the lowland was burned from Skilak Lake northwest to the Swanson River. All types of the interior forest were represented with small islands left due to topography, ground fuel or fire behavior. These include pure stands of birch and aspen and some mature white spruce-birch forests, located on ridges.



The nature of vegetative growth within the 1947 Burn indicates that no fire had occurred here for more than 50 years. Available winter forage for moose was therefore at a low level. The area encompassed within the burn had been closed to moose hunting for 15 years prior to the fire. In spite of this, the region supported only a sparse moose population. A January 1949 survey recorded 273 moose in the burned area.

Transects, established in 1950, have shown a great change in vegetation, type, quality and quantity. Some of the changes of interest to moose are as follows:

1. Spruce-both white and black spruce are nearly universal over the entire burn. This started immediately after the burn and now dominats are approximately 10 to 15 feet tall. This will tend to eliminate the more shade intollerant brouse species.

2. Aspen was prominent throughout much of the original stand in scattered trees or small groves. This resulted in a heavy re-vegetation of Aspen from root and stump sprouts and later seedling stock. Heavy moose browse has killed some of this Aspen and natural selection others. Some has grown out of reach from under browsing.

3. Birch has covered nearly 1/5 of the burn area. Most of this has come from reseeding from remaining mature trees. Utilization has been moderate to heavy throughout the burn.

4. Willow reporduction, spradic and varying indensity throughout, shows evidence of heavy browsing.

The re-vegetation of this burned area has been determined largely by the vegetative types occurring prior to the fire. Generally all fires tend to favor hardwood initially until succession favors the more shade tolerant spruce. Repeated severe fires will tend to discourage woody vegetation and favor Calamagrastis.

Moose populations have changed quite dramatically after the burn. Under suitable conditions, there is a period from 5 to 20 years where moose forage conditions are the most favorable. Occasionally forage conditions can remain adequate for 60 to 70 years.

Cow/calf ratios, total moose population and percent of the entire herd built up to high levels about 11 years following the 1947 burn. An example of this is that in 1950, 3 years after the burn, 15% of the herd used the burn area, this rose to 60% of the herd in 1958. Since that, a decline is evident but this is thought to reflect hunting pressure rather than habitat conditions.

In 1926 approximately 11,000 acres burned in the Kasilof area. This area has consistently supported high wintering populations. This has resulted in a hedge like growth of Birch and Willow about 5 feet tall. Although much of this area is overused, there still is much forage produced. Exclosures dating back to the early 30's show tree size birch but no available forage. Spruce invasion has been slow and sparse.

A white spruce tract of approximately 4,000 acres also burned in 1926. Revegetation resulted in dense even-aged spruce stand. It concurrently developed a good browse stand of willow, birch and aspen and was heavily used until 1950. Rehabitation work done in recent years by mechanical means has brought back some of the area to a more favorable browse condition.

About 20,000 acres of the benchland between Skilak and Tustamena Lakes burned between 1885 and 1890. This area continues to support heavy willow growth that has had continual browsing to 4 to 5 feet. Spruce invasion has been slow but is increasing. This area has supported the herds of large bulls that have been the prize since the Kenai became famous.

The Chickaloon River area burned about 2,000 acres around 1920. This area is a poor winter range but does contain some moose. Black spruce is the main vegetation with some stands of alder.

A 10,000 acre white spruce-birch stand near Bedlam Lake burned arount 1920. It revegetated heavily to birch with sparse stockings of spruce and provided a significant wintering site during the 1930's and 1940's. Much of the birch grew out of reach and no longer supports browse growth of importance.

A portion of the 1947 burn reburned in 1963. This burn contained about 400 acres. This does support some moose at the present but is too small to have much importance.

In 1969 a campfire on the Swanson River started a 83,000 acre fire. This fire burned the same type of timber that was burned in 1947. It is apparent at this time that the regeneration from this burn will eventually provide browse similar to that of the 1947 burn.

A recent timber sale, salvaging the remaining wood from the 1969 burn, has some promise in providing good browse. Removing the slash lessens the amount of shade and the logging acarifies the soil enough to allow for seed germination.

In summary burns have made quite a change in the vegetation of the Kenai:

1. Vegetation immediately following a burn is determined by the previous stand but tends to favor hardwoods.

2. A mixed stand of hardwoods is more favorable for moose forage than a pure stand.

3. After many years, probably 20 plus years, the stand will have a tendancy to go to spruce.

4. After burning in a boreal forest, under suitable conditions, there is a period extending from 5 to 20 years when moose forage conditions are the most favorable.

5. Since the late 1800's approximately 433,000 acres of the moose range has burned.

Wild fires tend to cause great fluxations in habitat and consequently great fluxations in moose populations. This is not agreeable to modern management techniques. For this reason control burns have been tried in the past and will be tried in the future. This past summer (1975) a control burn of about 30 acres was attempted within the perimeter of a mechanically crushed area. Due to extreme fire weather and upcoming commitments of the BLM fire suppression crews, the attempt was postponed. We again tried later in the summer but conditions were again not favorable. We are still planning on burning next spring or summer. Other means of habitat manipulation are being tried also. Mechanical crushers worked on about 2,000 acres last winter (1974 and 75) with excellant immediate results. This area will be monitored again this winter to see what moose use it will have.

Another means of habitat improvement will be by timber sales. This should provide good immediate results and also improve the long range browse production.

As land managers on the Kenai Moose Range, we are vitally concerned with all kinds of vegetation changes. Fire has played a big part in the past and will in the future but hopefully as controlled burns, on a consistent basis, rather than the large undependable wild fire.

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