



UNITED STATES  
DEPARTMENT OF  
AGRICULTURE

FOREST  
SERVICE

Superior  
National  
Forest

515 West 1st Street  
P.O. Box 338  
Duluth, MN 55801-0338

Caring for the Land and Serving People

Reply to: 4060

Date: May 23, 1989

Ms. Bertha Daubengiek  
Michigan Nature Association  
7981 Beard Road  
Box 102  
Avoca, MI 48006

Dear Ms. Daubengiek:

Chris Walker from Michigan called Norman Koller of my staff about Research Natural Areas. She said you were fortunate to be able to obtain an old-growth white pine stand in the Copper Harbor area of the Upper Peninsula.

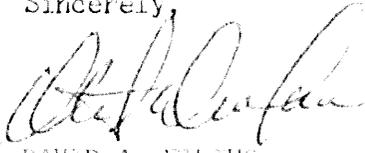
At the request of Chris, I am enclosing a copy of the following establishment records for two Research Natural Areas on the Superior National Forest:

1. Keeley Creek Research Natural Area
2. Lac LaCroix Research Natural Area

These records include both areas. The Lac LaCroix area would be of most interest to you because it includes old-growth red pine and white pine. Although this report was made in 1942, the volumes on page 7 would still be fairly accurate as no management activities have been done. The area is for research and scientific study.

Hopefully, this data will be of some use to you. Congratulations on your new, rare area of white pine.

Sincerely,

*on*   
DAVID A. FILIUS  
Forest Supervisor

Enclosure

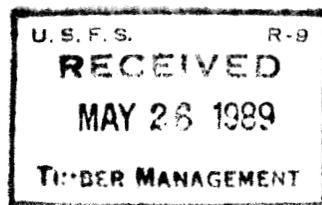
Keeley Creek / Lac La Croix





cc:  
Kawishiwi District Ranger  
LaCroix District Ranger  
Norm Koller  
Dave Tucci  
✓RC--John Murphy

NFKoller/jio



R - LS  
NATURAL AREAS  
Keeley Creek and  
Lac La Croix  
(Superior)

February 26, 1942

THE KEELEY CREEK AND LAC LA CROIX NATURAL AREAS

(Superior National Forest)

A large portion of the original Superior National Forest has remained in an essentially wild condition until recently; hence there has been no necessity for special measures to preserve samples of forest in a natural state. The situation is now changing. Timber cutting operations and recreational use are increasing to the extent that suitable and truly undisturbed areas of representative mature forest types may soon become relatively hard to find. Therefore, it appears appropriate to propose the establishment of two Natural Areas at this time. One of these, the Keeley Creek Natural Area, is situated in mixed types composed chiefly of jack pine, aspen, and black spruce. The other area, the Lac La Croix Natural Area is dominated by red pine and white pine.

KEELEY CREEK AREA

A tract of 640 acres on the Halfway Ranger District, adjacent to the south boundary of the Kawishiwi Experimental Forest (Sec. 14, T. 61 N., R. 11 W., as shown in fig. 1) is being proposed as a natural area because it is representative of the geological structure and natural flora and fauna characteristic of much of northeastern Minnesota. In comparison with many other similar tracts of government-owned land, the chief advantage of Section 14 is its easy accessibility for protection and use. It lies less than one-fourth mile from an all-weather road and is bordered on one side by an experimental forest utilization truck trail. Halfway Ranger Station and the Kawishiwi Experimental Forest Headquarters are situated at a distance of four miles; hence, the tract is assured of good protection. The distance to Ely by Minnesota Highway No. 1 is approximately 16 miles.

The closing of Section 14 will not interfere with management or logging operations on adjoining tracts because the area to the south can be reached from State Highway No. 1, and the area to the west from the Experimental Forest truck trail.

## Forest Types

The principal forest type within this mixed wood forest may be classed as "jack pine", which occupies roughly 420 acres 1/

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1/ As indicated by the timber type map prepared in 1922.

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or nearly all of the upland. It is composed of a mixture of jack pine, trembling aspen, black spruce, and paper birch, with a sprinkling of balsam fir, white pine, white spruce, and red pine. Generally, the jack pine exceeds the other tree species in numbers; in places it grows in nearly pure stands (fig. 2). Some patches are occupied by almost pure stands of aspen or black spruce.

The age of the dominant upland timber is chiefly about 70 years, although there are scattered older white pine and red pine of undetermined age, and remnants of a 180-year-old jack pine stand (fig. 3). The upland timber stand is clearly the result of a great fire which burned over much of what is now the Superior National Forest about 1870. An epidemic of spruce budworm killed most of the balsam about 1925, and attacks by the birch leaf skeletonizer (1932-33), the forest tent caterpillar (1934-36), and the jack pine form of the spruce budworm (1938-40) as well as windstorms and the severe droughts of 1934 and 1936, have resulted in the death or weakening of many trees. The timber has been rather badly decimated by the inroads of these various destructive agents, and the present stand is clearly overmature. Still, it is representative of large areas of forest in north-eastern Minnesota. What tree species will succeed the present stand and what other vegetational changes will occur are questions of great practical importance in silvicultural management. The establishment of Section 14 as a natural area will insure the preservation of a place for observing the undisturbed progress of this rapidly changing secondary succession.

Peat bogs, chiefly forested with black spruce, occupy most of the remaining 240 acres. The swamps range in condition from primitive floating bogs (fig. 4) to more mature forms supporting dense black spruce pulpwood stands. The black spruce timber is generally mature, ranging in age from about 70 to 180 years. It is largely in a rather good condition of thrift, although some patches are decadent and dying. Tamarack was once an important tree species in the bogs, but the mature trees have been killed out by the larch sawfly. Tamarack reproduction is abundant in places.

In addition to the trees, which are of primary interest to foresters, Section 14 supports all of the typical lower vegetation associated with the mixed wood forests growing on the rock outcrop formation in northeastern Minnesota. There are exceptionally fine growths of mosses and lichens (fig. 5).

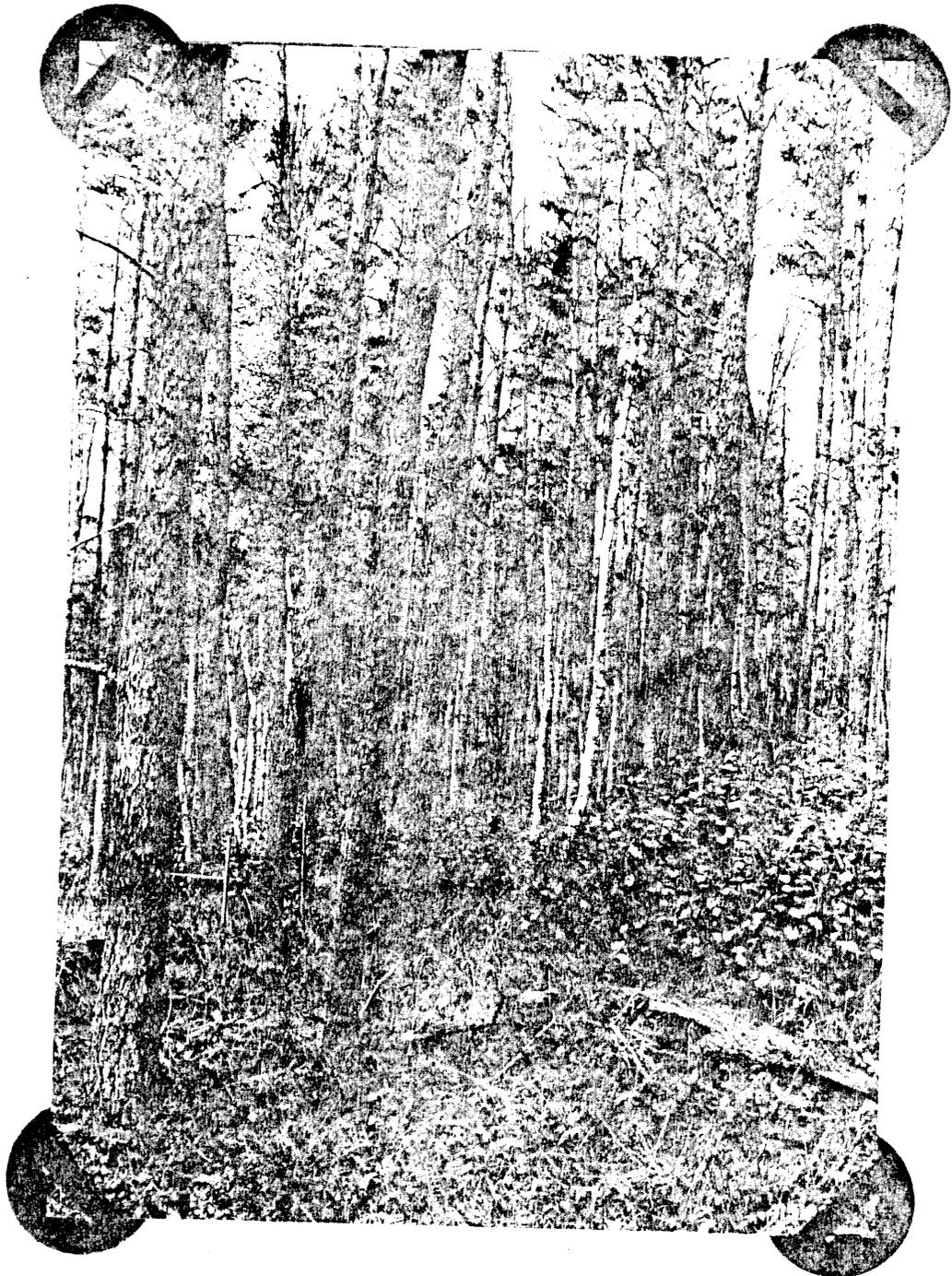


Figure 2.--Seventy-year-old jack pine timber.  
Proposed natural area. Twelve-inch increment  
borer inserted in tree in left foreground.



Figure 3.—Jack pine trees approximately 130 years in age. Proposed natural area. Notice dead tree in right foreground and numerous fallen trees, indicating extreme condition of decadence. Live tree at right front is 80-year-old black spruce. The jack pine range from 11 to 15 inches in diameter at breast height.

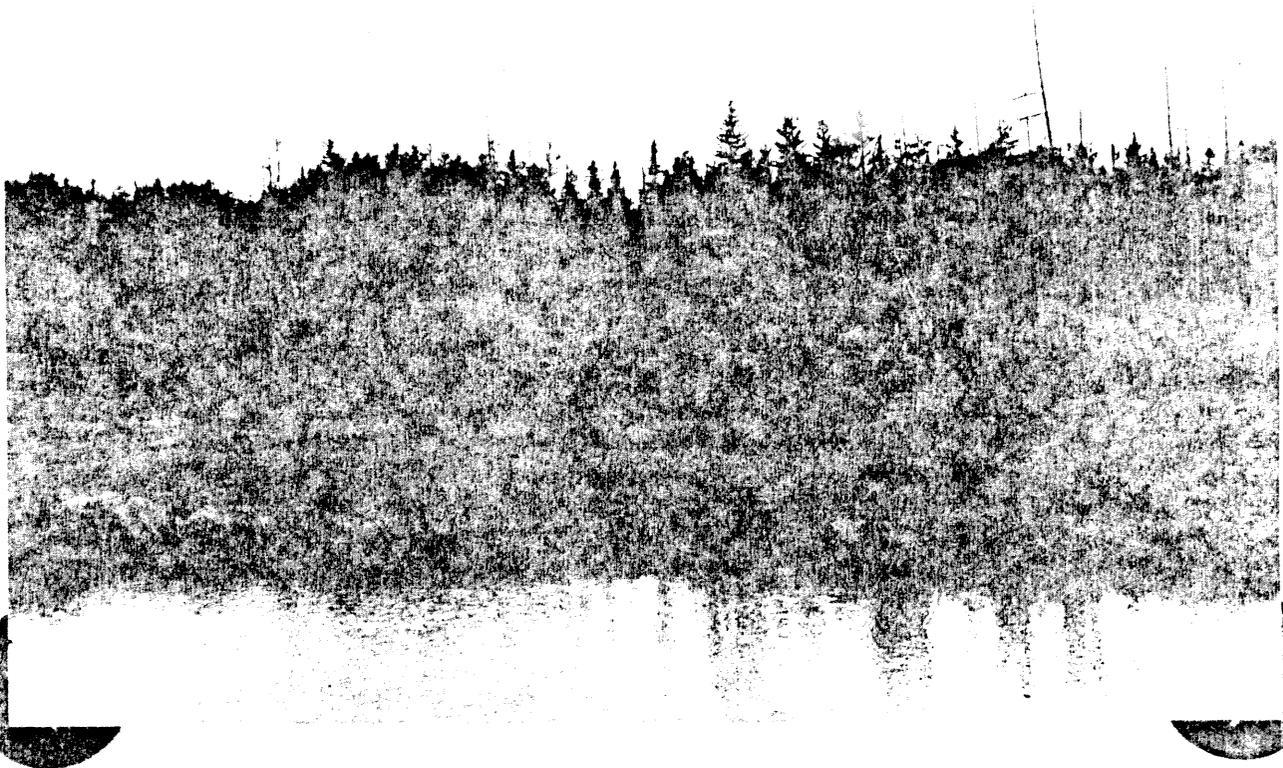


Figure 4.--Floating bog (sedge, leatherleaf, tamarack) around border of small pond. Jack pine mixed type in background. Proposed natural area.



Figure 3.--Early stage of a primary succession on rock. Proposed natural area. Crustose, foliose, and fruticose lichens, and hardy mosses growing on a gabbro boulder. The jack pine needles scattered about are roughly  $1\frac{1}{2}$  inches in length.

### Volume of Timber

The timber in Section 14 was cruised in 1921 and 1922. At that time it was estimated to contain approximately 300,000 feet, b.m., of saw timber, and 6,000 cords of pulp and fuel wood as shown in table 1.

Table 1.--Volume of timber by species and products.

| Species                       | Ft. b.m.       | Cords        |
|-------------------------------|----------------|--------------|
| Jack pine.....                | 286,249        | 4,635        |
| Spruce (black and white)..... | 381            | 1,427        |
| White pine.....               | 59,439         | --           |
| Aspen.....                    | --             | 534          |
| Paper birch.....              | --             | 394          |
| Balsam fir.....               | --             | 18           |
| <b>Total.....</b>             | <b>326,009</b> | <b>7,008</b> |

### Topographic and Geologic Features

Part of the section is drained by Keeley Creek which transverses the area (fig. 6). Keeley Creek is a small stream, too rocky for canoe travel, and supporting no game fish. The remainder of the area drains southward to nearby Harris Lake. There are no major changes in elevation, although the surface is very rough and difficult for travel, due to the presence of numerous gabbro rock ledges (fig. 7). The geologic formation is part of the Canadian Shield.

Although this area is situated not far from the very productive mines of the Vermillion and Mesabi iron ranges, it is almost certain there are no commercial deposits of iron ore on Section 14, because all of northeastern Minnesota has been thoroughly prospected for iron, and the locations of the important ore bodies are quite well defined. The only known mineral resource seeming to have any possibility for exploitation is gabbro rock, which is quarried locally to a limited extent. However, the enormous quantity of this stone available over several townships precludes the likelihood that closure of one square mile will interfere with industrial development.

## Wildlife

The conditions for wildlife are typical of much of the Superior National Forest. The populations of various forms of wildlife no doubt differ considerably from those in earlier periods because of the extinction or decimation of several important fur-bearing and predatory animals. The area is not now within a game refuge and it is recommended that it be kept open to hunting of game, as a means of partially offsetting the scarcity of the larger predators. In any event, hunting is not likely to cause a serious drain on the game species (white-tailed deer, ruffed grouse, and snowshoe hares) because most sportsmen prefer terrain where travel is easier and visibility is better.

## Recommendation

The only significant restriction on use of Section 14 that will be imposed by reserving it as a natural area is the loss of the timber. Taking into consideration the large amount of similar overmature timber available for cutting on the Superior National Forest, and the relatively low value of stumpage, the preservation of one square mile in a wild condition for scientific studies of forestry, botany and zoology, seems to be entirely justifiable. It is, therefore, recommended that this area be formally established as a natural area.

## THE LAC LA CROIX AREA

The second tract proposed as a natural area supports a fine stand of mature red pine and white pine. It is one of the very few remaining practically unmodified pieces of high quality virgin pine in the Lake States (fig. 8). It borders Lac La Croix near the international boundary northwest of Ely and lies within the Roadless Area of the Superior National Forest. Because of its inaccessibility it has relatively little commercial value at present. There are about 973 acres in the tract, as shown in table 2 and figure 9.

The area may be reached in four ways: (1) by motor launch from Crane Lake, a trip of 3 to 5 hours; (2) by canoe over the Moose River route from the Ely-Buyck Forest Service road, a distance of about 10 miles, requiring about 2½ hours; (3) by an excellent foot trail from the site of Portage River CCC Camp No. 711, approximately 11 miles; and (4) by seaplane from Ely, about 30 minutes. The lack of accessibility by automobile is a drawback, but it can be remarked that the timber would probably have been logged off years ago had it been more accessible. The larger portion of the tract involved was acquired by purchase from a private owner several years ago.

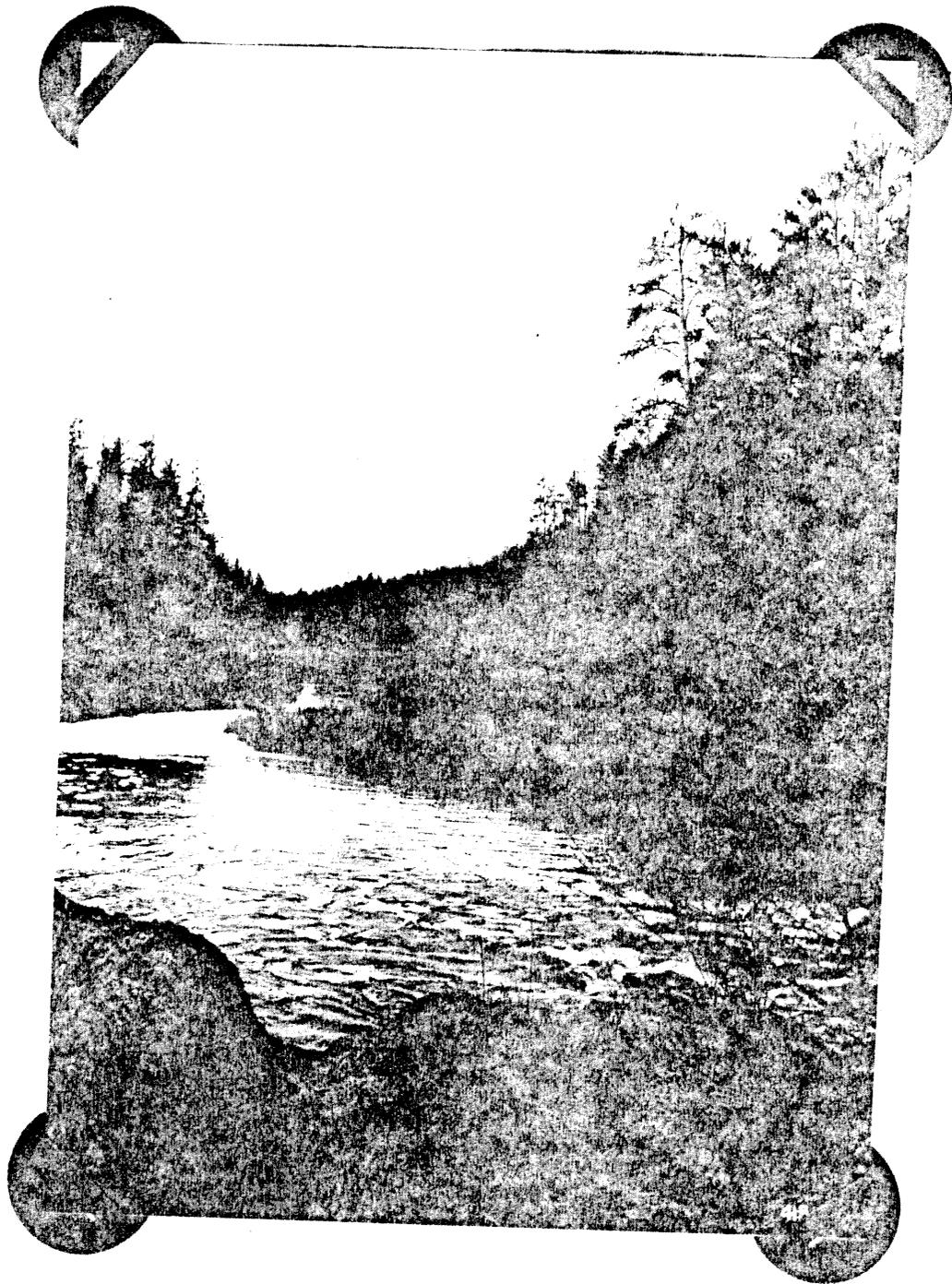


Figure 6.--View of Keeley Creek. Proposed natural area.

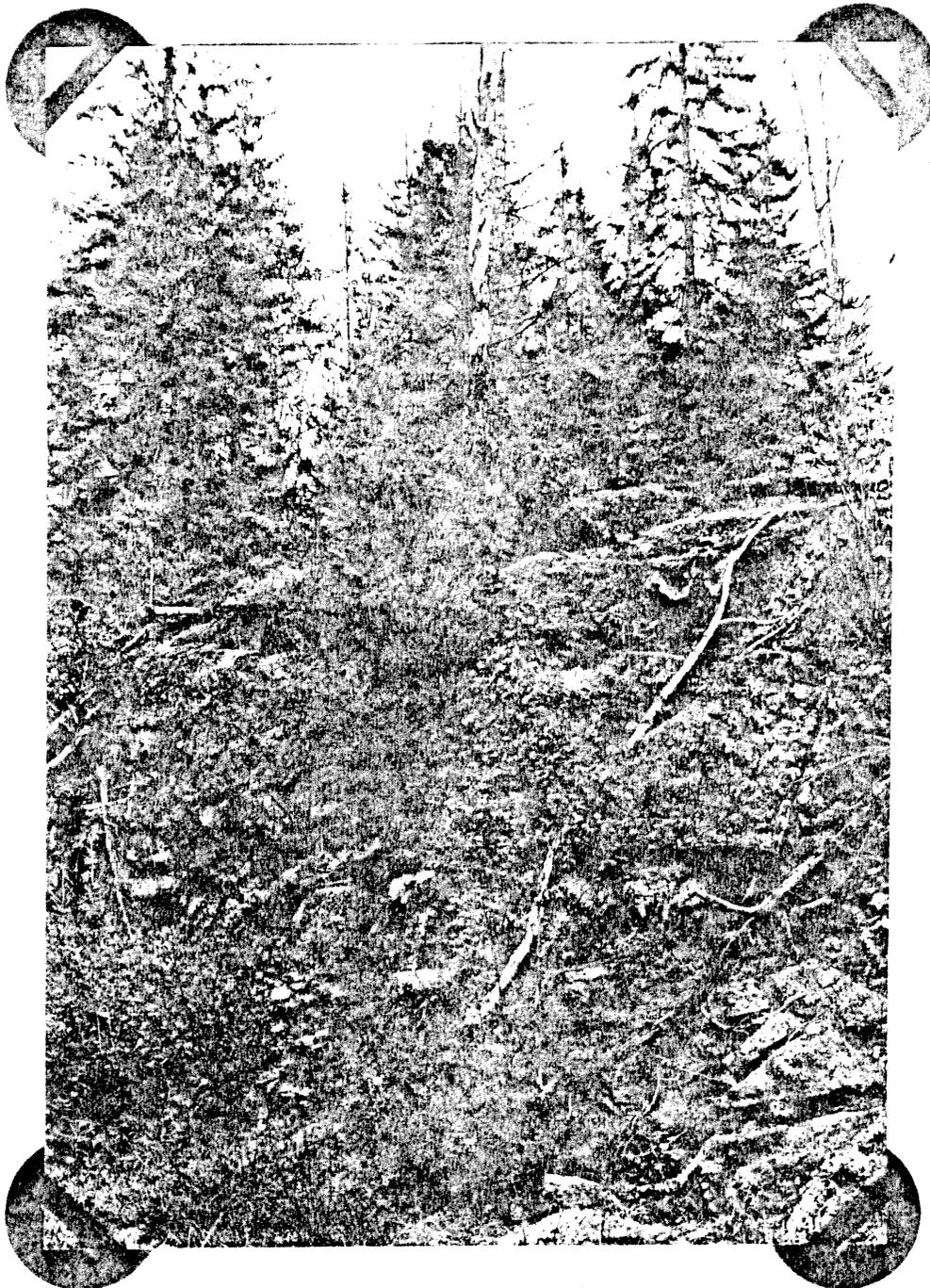


Figure 7.--Eighteen-foot ledge. Proposed natural area. Many trees have died during the past decade on the shallow soils which form only a thin mantle over the bed rock.



Figure 8.--Virgin red pine forest. Proposed natural area. Leaning tree at left 25 inches d.b.h., center foreground 19 inches d.b.h., center rear 21 inches, right foreground 22 inches.

Table 2.--Legal description and areas of land within  
Lac La Croix natural area.

| Lot or<br>forty | Section | Township<br>(N) | Range<br>(W) | Area<br>(Acres) |
|-----------------|---------|-----------------|--------------|-----------------|
| 5               | 32      | 67              | 13           | 5.00            |
| 12              | 33      | 67              | 13           | 10.00           |
| 3               | 4       | 66              | 13           | 40.75           |
| 4               | 4       | 66              | 13           | 37.25           |
| 5               | 4       | 66              | 13           | 26.22           |
| SW NW           | 4       | 66              | 13           | 40.             |
| NW SW           | 4       | 66              | 13           | 40.             |
| NE SW           | 4       | 66              | 13           | 40.             |
| NW SE           | 4       | 66              | 13           | 40.             |
| SW SE           | 4       | 66              | 13           | 40.             |
| SE SW           | 4       | 66              | 13           | 40.             |
| SW SW           | 4       | 66              | 13           | 40.             |
| 1               | 5       | 66              | 13           | 33.48           |
| 2               | 5       | 66              | 13           | 40.46           |
| 3               | 5       | 66              | 13           | 40.43           |
| SE NW           | 5       | 66              | 13           | 40.             |
| SW NE           | 5       | 66              | 13           | 40.             |
| SE NE           | 5       | 66              | 13           | 40.             |
| NE SE           | 5       | 66              | 13           | 40.             |
| NW SE           | 5       | 66              | 13           | 40.             |
| NE SW           | 5       | 66              | 13           | 40.             |
| 5               | 5       | 66              | 13           | 36.75           |
| SW SW           | 5       | 66              | 13           | 40.             |
| SE SW           | 5       | 66              | 13           | 40.             |
| SW SE           | 5       | 66              | 13           | 40.             |
| SE SE           | 5       | 66              | 13           | 40.             |
| 11              | 6       | 66              | 13           | 5.75            |
| 12              | 6       | 66              | 13           | 16.50           |
| <b>Total</b>    |         |                 |              | <b>972.59</b>   |

In spite of the distance from roads, the area is assured of reasonable protection from forest fires because of its proximity to Lac La Croix guard station.

One public campground, of the type provided for wilderness travelers by the Forest Service, is situated within the tract. It is located on a narrow point projecting into Boulder Bay in Lot 3, Section 4, Township 66 N., Range 13 W. (fig. 10). The campground has simple facilities in keeping with the character of the surroundings; a stone fireplace, log table, toilet, and level cleared spot for a tent. It was designed to encourage canoeists to camp in a safe place and to prevent unsanitary and untidy practices. For these purposes, a public campground within a natural area is wholly desirable. In this district campers seldom stray far from their canoes, and it is believed that they will not seriously disturb the natural area.

#### Forest Types

Red pine and white pine occur both in pure stands and in mixture. Most of the timber is mature or overmature, but is generally in good condition and can be expected to remain so for a long time, in the absence of catastrophes. Basal scars indicate that past fires have burned over the area without destroying the timber. According to the timber type map, red pine type and white pine type each cover about 30 percent of the area within the unit. The remaining 40 percent is occupied by various types, the principal one being aspen.

The largest red pine measured while examining the area was 28 inches d.b.h., although there probably are larger ones present. The largest white pine found was 44 inches d.b.h. (fig. 11). Many of the trees of both species are exceptionally clean and well formed. In the rockier places, where the soil is shallow, the trees are inferior in size and form.

The white pine stands are generally rather open and have a heavy undergrowth of balsam fir and shrubs. The red pine is relatively clear of undergrowth, although brush is heavy in places and there are some thickets of young balsam fir (fig. 12).

Increment cores for determination of ages could not be collected on the larger trees, but red pine from 17 to 22 inches d.b.h. were found to range from 135 to 190 years in age. An aspen, 18 inches d.b.h., was approximately 70 years old.

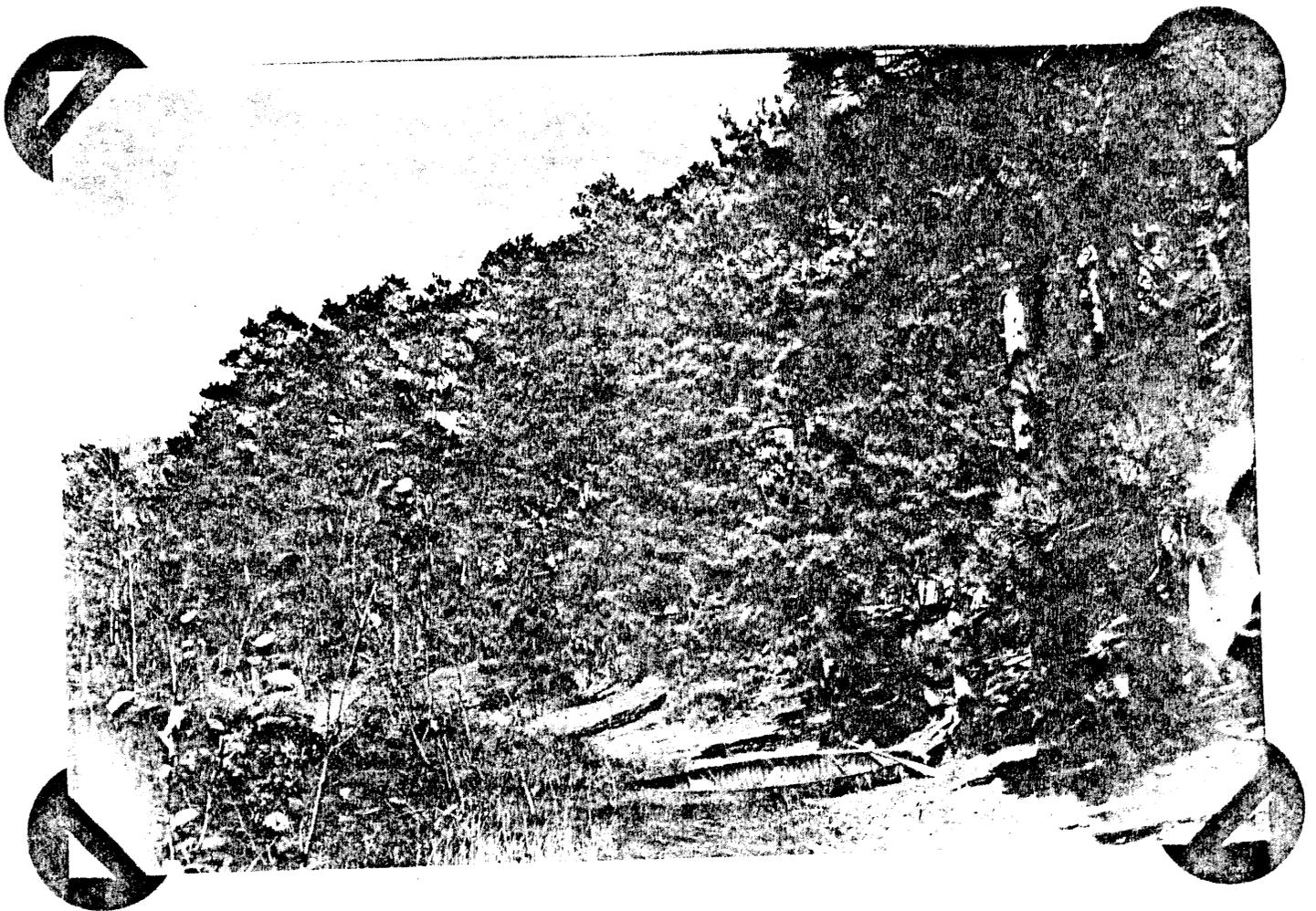


Figure 10.--Point in Boulder Bay, Lac La Croix, upon which simple camping facilities have been installed. Proposed natural area.

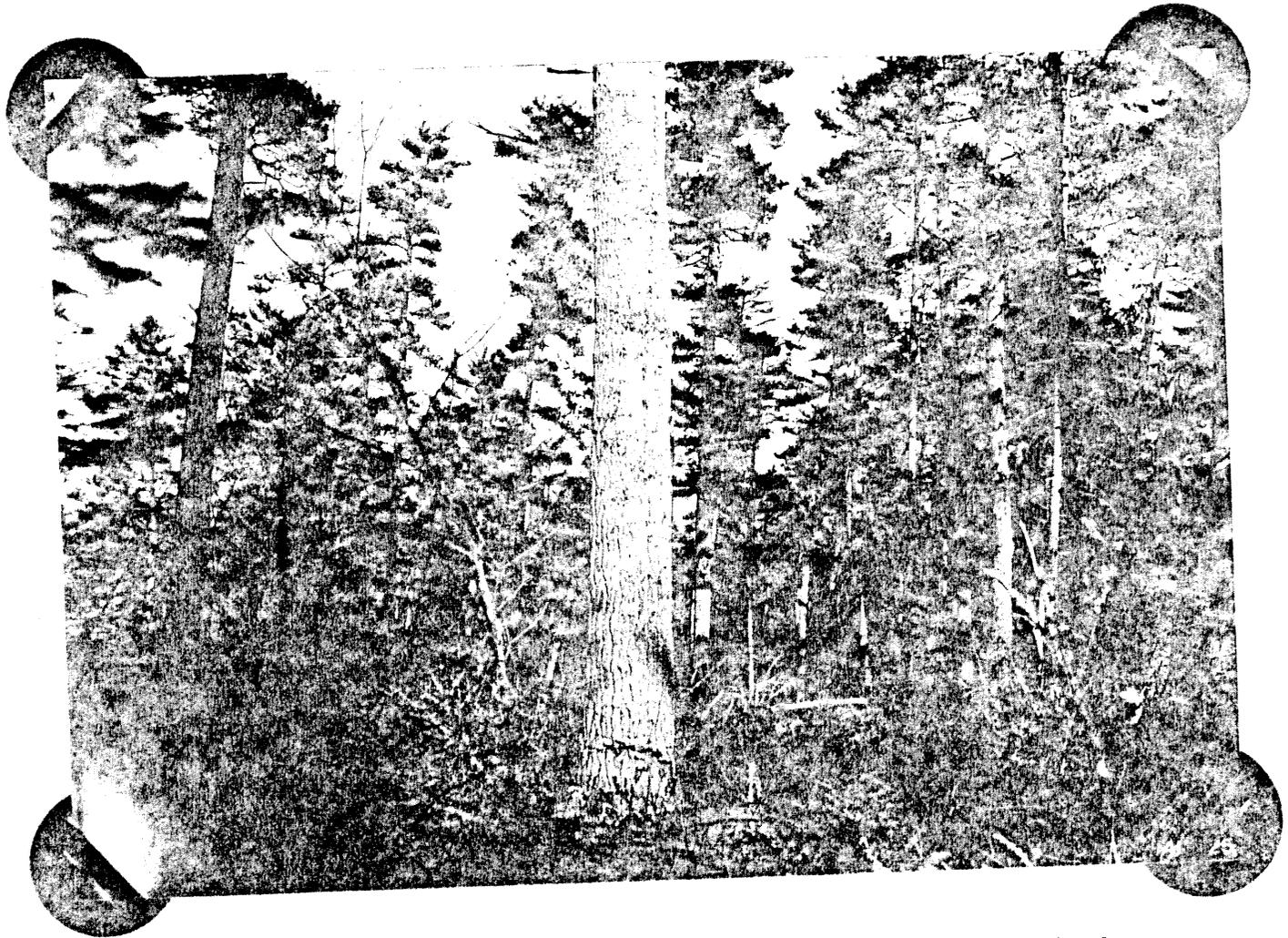


Figure 11.--White pine stand. Tree in foreground 42 inches d.b.h. Stand badly thinned by windstorm about 1938. Proposed natural area.

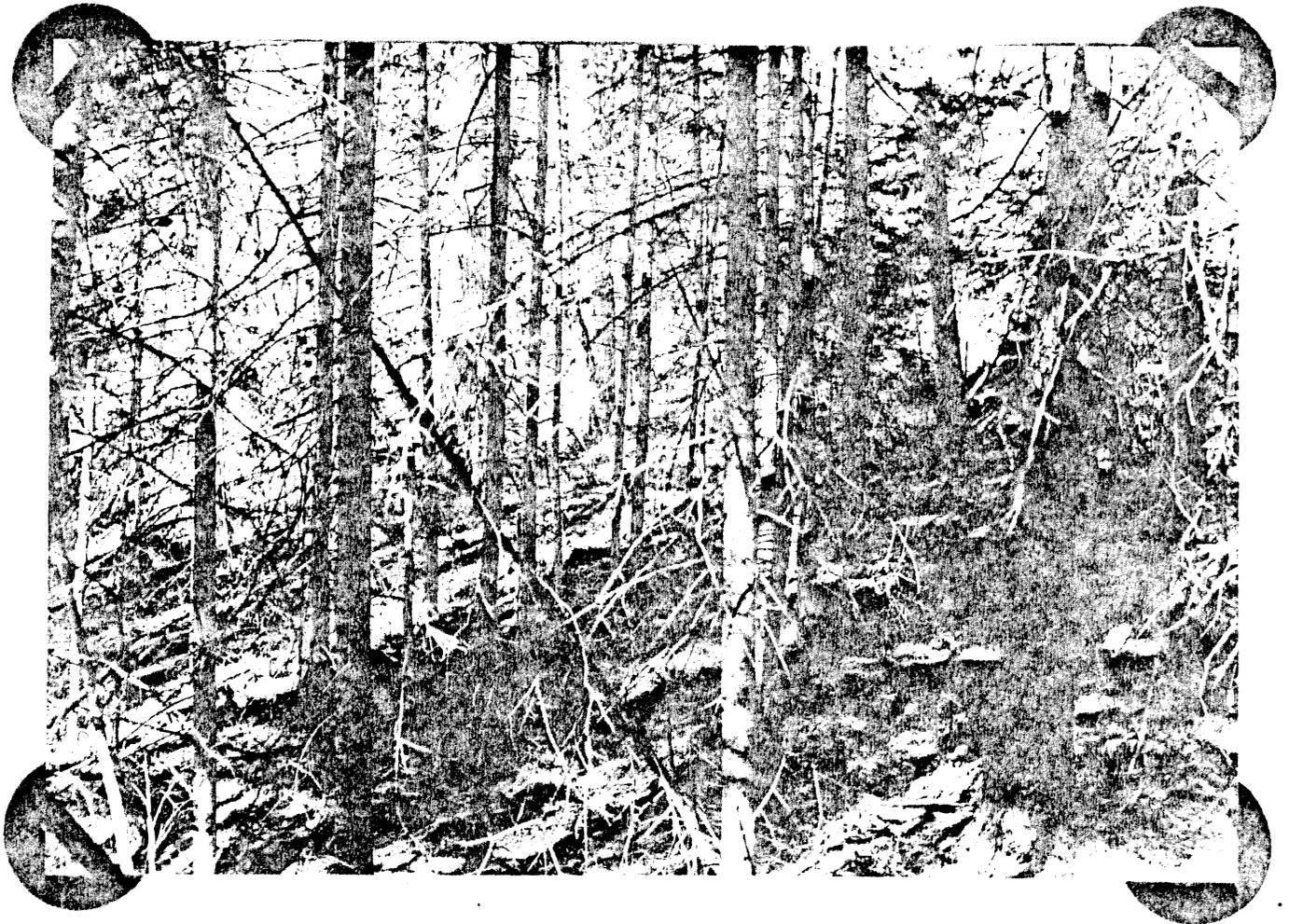


Figure 12.--Balsam fir (also one each of black spruce and white pine) saplings under mature red pine. Proposed natural area.

### Volume of Timber

Timber surveys made within the last 10 years indicate that the timber volume present amounts to about 12 million feet of saw timber and 4,000 cords of pulp and fuel wood (table 3). In addition, there are 6,000 white pine, red pine, and cedar "poles" in trees less than 10 inches d.b.h., and 590 cedar posts.

Table 3.—Timber volume by species and products in  
Lac La Croix natural area.

| Species                          | Product <sup>1/</sup>  |              |              |            |
|----------------------------------|------------------------|--------------|--------------|------------|
|                                  | K. feet<br>:<br>: d.m. | Cords        | Poles        | Posts      |
| White pine.....                  | 5,731                  | --           | 4,221        | --         |
| Red pine.....                    | 7,152                  | --           | 1,340        | --         |
| Jack pine.....                   | 79                     | 175          |              |            |
| Aspen.....                       | 280                    | 2,414        |              |            |
| Spruce (black and<br>white)..... | 255                    | 421          |              |            |
| Paper birch.....                 | 288                    | 310          |              |            |
| Balsam fir.....                  | 134                    | 590          |              |            |
| Northern white cedar             | --                     | --           | 26           | 500        |
| <b>Total</b>                     | <b>11,899</b>          | <b>3,910</b> | <b>6,087</b> | <b>500</b> |

<sup>1/</sup> Gross volume without deduction for rot and other cull.

### Geographic and Geologic Features

The proposed area is much cut up by the so-called "Boulder River," which is not actually a river in the sense of being an eroded drainage channel. It would perhaps be more accurate to describe Boulder River as a long, narrow extension of Boulder Bay connecting it with Lake Agnes. The effect of the numerous bodies of water within and around the tract is to make travel by canoe or boat almost a necessity (fig. 13).

The topography is quite rugged and there are a number of tall granite cliffs (figs. 14 and 15). In places the surface is strewn with boulders. The soil is variable, ranging from shallow sandy loams containing a high percentage of decomposed rock fragments to fairly deep glacial deposits of sand.

Wildlife

The Lac La Croix tract is included in an enormous state game refuge. However, the inaccessibility of this district would naturally hinder hunters sufficiently to prevent any extensive killing of game species. Excepting for the decimation of valuable fur bearers and timber wolves, there has been essentially no disturbance of the animal population. Moose, black bear, and white-tailed deer are seen frequently in this locality.

Fishing is permitted and the two principal game fish, wall-eyed pike and northern pike, are abundant.

Recommendation

Practically the only use which is being made of the border lakes portion of the Superior National Forest at present is for wilderness recreation, canoe travel, and fishing. Such use of the forest is not inconsistent with the maintenance of the natural area. The establishment of a natural area will make certain the preservation of a sample of the once famous red and white pine forest for study by ecologists, foresters, and others interested in the general field of biology. It is, therefore, recommended that the tract described in this report be set aside and designated as the Lac La Croix Natural Area.

Submitted: Russell K. LeBarron 2/28/42  
Associate Silviculturist Date

Clare Mendes 3/5/42  
Forest Supervisor Date

Approved: Raphaelson 3/2/42  
Director Date

(2) JAY H PRICE 3/17/42  
Regional Forester Date



Figure 13.--View of mature red pine forest across a bay in Lac La Croix. Proposed natural area. Nearly one-fourth of the unit is covered by water.

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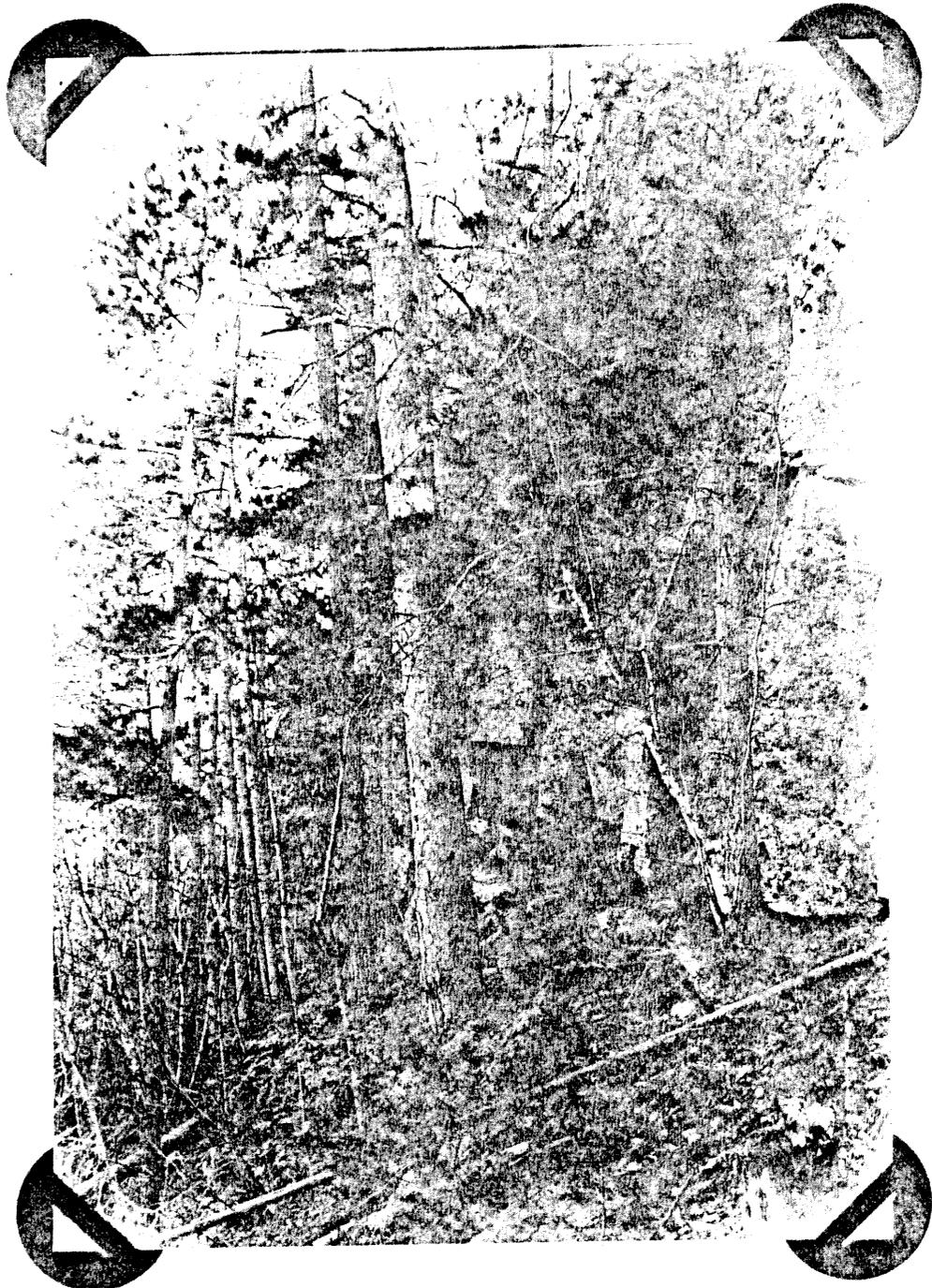


Figure 14.--Red pine stand with white pine understorey growing in talus at foot of massive granite cliff. Proposed natural area.

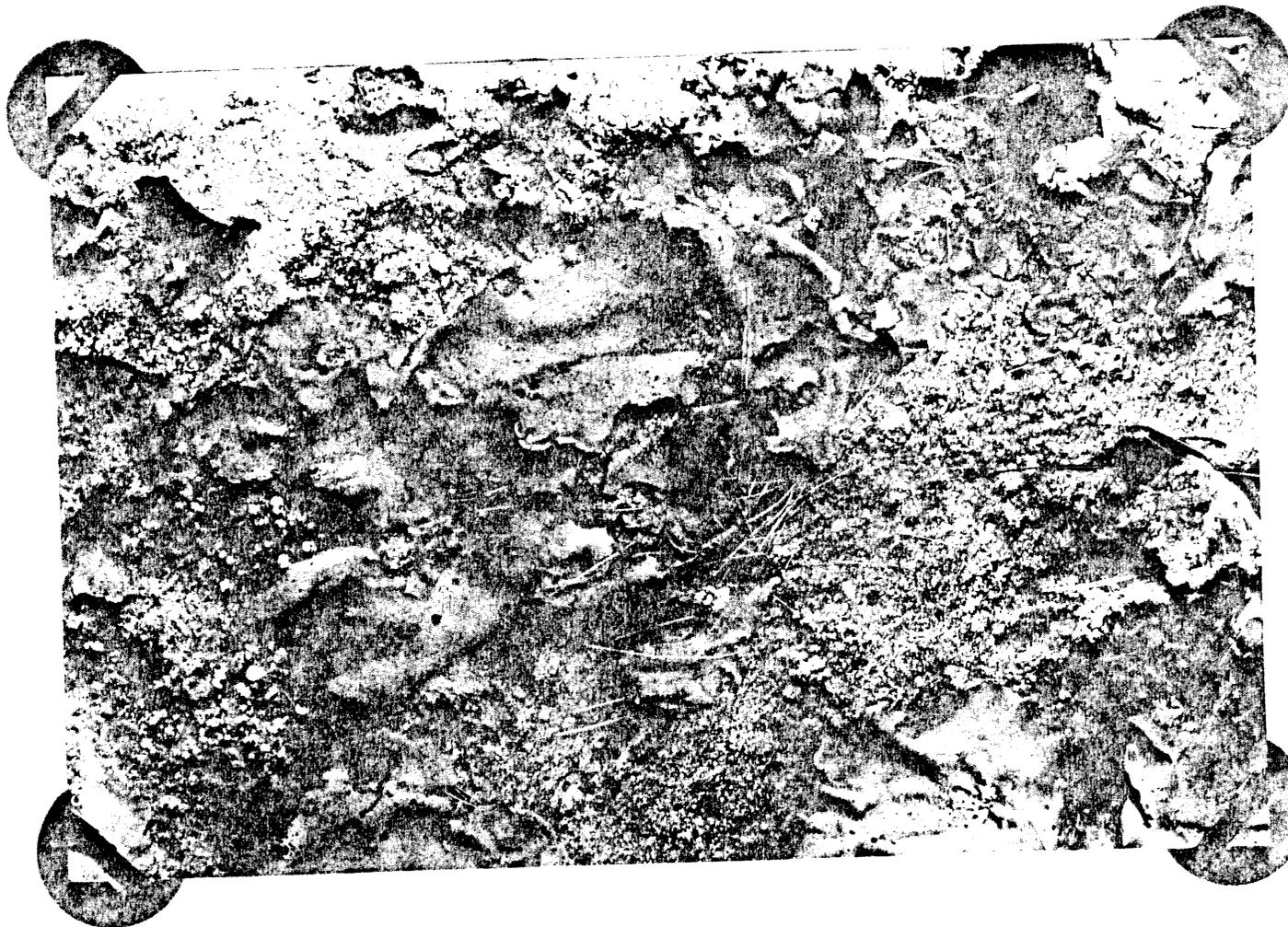


Figure 15.--Extraordinarily large foliose lichens growing in sheltered position on cliff near place shown in figure 14. Compare size with 5-inch red pine needles. Proposed natural area.

ORDER

By virtue of the authority vested in me by Regulation U-4 of the Secretary of Agriculture, I do hereby designate as the Kesley Creek Natural Area, Section 14, Township 61 North, Range 11 West, Fourth Principal Meridian, and as the Lac La Croix Natural Area, the following described lands: Lot 5 of Section 32, and Lot 12 of Section 33, in Township 67 North, Range 13 West, Fourth Principal Meridian; Lot 3, Lot 4, Lot 5, the SW $\frac{1}{4}$  of the NW $\frac{1}{4}$ , the NW $\frac{1}{4}$  of the SW $\frac{1}{4}$ , the NE $\frac{1}{4}$  of the SW $\frac{1}{4}$ , the NW $\frac{1}{4}$  of the SE $\frac{1}{4}$ , the SW $\frac{1}{4}$  of the SE $\frac{1}{4}$ , the SE $\frac{1}{4}$  of the SW $\frac{1}{4}$ , and the SW $\frac{1}{4}$  of the SW $\frac{1}{4}$  of Section 4; Lot 1 Lot 2, Lot 3, the SE $\frac{1}{4}$  of the NW $\frac{1}{4}$ , the SW $\frac{1}{4}$  of the NE $\frac{1}{4}$ , the SE $\frac{1}{4}$  of the NE $\frac{1}{4}$ , the NE $\frac{1}{4}$  of the SE $\frac{1}{4}$ , the NW $\frac{1}{4}$  of the SE $\frac{1}{4}$ , the NE $\frac{1}{4}$  of the SW $\frac{1}{4}$ ; Lot 5, the SW $\frac{1}{4}$  of the SW $\frac{1}{4}$ , the SE $\frac{1}{4}$  of the SW $\frac{1}{4}$ , the SW $\frac{1}{4}$  of the SE $\frac{1}{4}$ , and the SE $\frac{1}{4}$  of the SE $\frac{1}{4}$  of Section 5; Lot 11 and Lot 12 of Section 6 in Township 68 North, Range 13 West, Fourth Principal Meridian.

Jurisdiction, occupancy, and use will be governed by the provisions of Regulation U-4 and the instructions thereunder.

(S) L. F. KNEIPP  
Acting Chief Forester

5/10/82  
Date