

Not for Publication

THE OPERATIONAL ORGANIZATION
OF THE KANANASKIA RESEARCH FOREST

by

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FOREST RESEARCH LABORATORY

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Preface

This report presents in outline form the operational organization of the Kananaskis Research Forest for the information of regional departmental personnel and those of co-operating agencies who are working on the area.

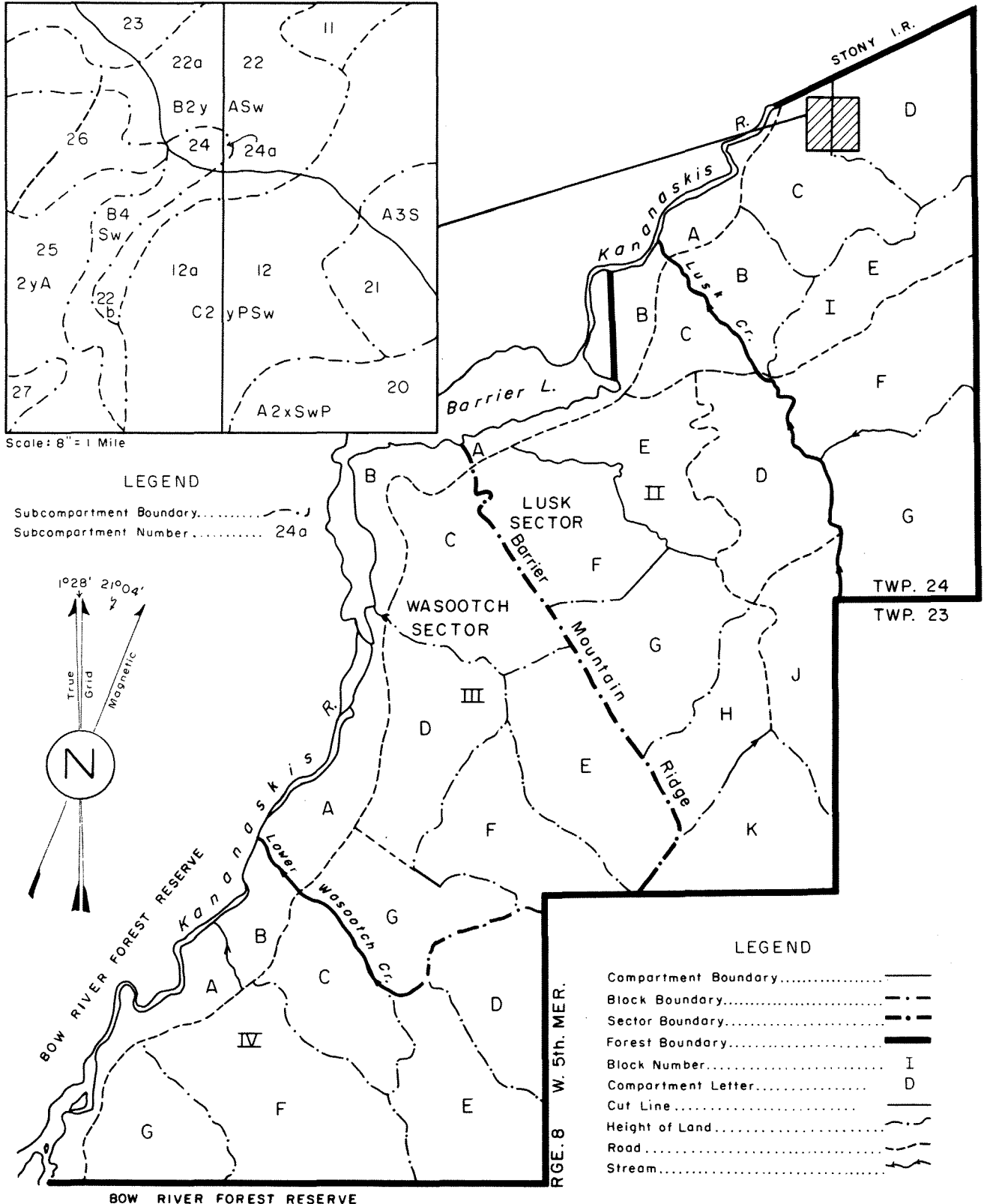
The outline provides the framework for the physical and administrative development of the area exclusive of the detailed aspects of forest management.

The management of the productive forest areas will concur with the primary functions of research and demonstration as they are set out in this report.

KANANASKIS RESEARCH FOREST

BOUNDARIES OF SUBDIVISIONS

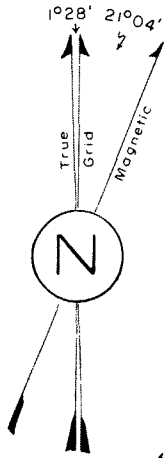
Scale 1" = 1 Mile



Scale: 8" = 1 Mile

LEGEND

- Subcompartment Boundary.....
- Subcompartment Number..... 24a



LEGEND

- Compartment Boundary.....
- Block Boundary.....
- Sector Boundary.....
- Forest Boundary.....
- Block Number..... I
- Compartment Letter..... D
- Cut Line.....
- Height of Land.....
- Road.....
- Stream.....

BOW RIVER FOREST RESERVE

The Operational Organization of The Kananaskis Research Forest

Boundaries

All non-productive classes of land are included within the same subdivision frame-work as the management forest. This pre-supposes the potential use of the area for research and demonstration purposes additional to those directly related to wood production. In setting up the boundaries of permanent subdivisions, full use has been made of natural and cultural features that can be easily identified both on aerial photographs and on the ground.

In the higher altitudes, heights of land are used almost exclusively as boundaries and this feature makes up the largest portion by linear measurement of permanent boundaries. In a descending order of proportion, roads, streams and cut lines make up the rest of the boundary mileage.

Full use has been made of existing roads and cut lines and the permanent system of boundaries will be completed with the cutting of 71 chains of line during the 1966 field season.

Units

A natural feature which roughly bisects the station into two different types of land formation is the Barrier Mountain Ridge. This local divide forms the boundary between the two major subdivisions of the station which are set up primarily for administrative and descriptive purposes and are designated as sectors; the Lusk Sector and the Wasootch Sector.

Each sector is divided into two blocks of approximately equal area with Lusk Creek forming the boundary between Blocks I and II in the Lusk Sector. The boundary between the two sectors is also the boundary between Blocks II and III. The Lower Wasootch Creek and a height of land each constitute about equal portions of the boundary between Blocks III and IV in the Wasootch Sector.

Blocks I, III and IV are each composed of seven compartments which are designated in alphabetic sequence by upper case letters A to G inclusive. Block II, which has the greatest area, has 10 compartments similarly designated A to K. (The letter I being omitted to avoid possible confusion with the digit 1). The compartments will be the basic administrative units for forest management purposes.

The covertypes defined on the forest classification map produced by the Department of Lands and Forests of Alberta form the silvicultural subdivisions of the forest. The boundaries of these types do not coincide with the boundaries of the administrative units. Covertypes boundaries cannot always be consistently defined on the ground and are subject to being shifted as succession, stand treatment, logging or changes in classification systems require.

For reference purposes, the covertypes and non-productive land types that form integral units on the covertypes map have been assigned individual index numbers 1 to 453 inclusive. Where the fixed compartment boundaries divide these types into two or more sections, lower case letters in alphabetic sequence are appended to the type numbers to designate these sections within the individual compartments. These type sections or whole type units, if they fall entirely within one

compartment, constitute the silvicultural units within each compartment and are called subcompartments.

By this system any location on the forest area can be identified by the block, the compartment and the subcompartment designations, e.g. ID 24a.

There are 733 subcompartments in total and the number in each subdivision is shown in Table I.

Table I - Number of subcompartments in each Sector, Block and Compartment

2 Sectors	4 Blocks	31 Compartments
Lusk 500	I	A B C D E F G 18 26 51 32 32 35 41
	II	A B C D E F G H J K 10 17 19 35 36 27 22 29 32 38
Wasootch 233	III	A B C D E F G 20 12 18 11 10 17 27
	IV	A B C D E F G 17 15 19 16 26 22 3

Marking Boundaries

All reserved areas on the station are to be suitably defined by marked boundaries to protect them from unintentional destruction and to provide a permanent record of location for long-term projects.

Where tree boles are marked in defining boundaries, the marks should be placed at a height of 5 feet and the trees to be marked should be easily discernible from one marked tree to the next. As a

general guide, a distance of 20 feet between marked trees should in most instances prove satisfactory. Methods to be used in defining boundaries are as follows:

1. Clearing strips 6 to 9 feet in width through the forest.
2. Painting rings 3 or 4 inches wide on the trunks of the larger trees.
3. Scribing, with vertical scribes about 6 inches long, the trees just outside the boundary.
4. Tying coloured plastic tape on the tree trunks.
5. Fencing with wire, wire mesh or wooden rail as required to keep out human traffic and browsing animals.
6. Blazing the trees.

Where surround strips are used the boundary should be located along the outer perimeter of these strips.

Where the boundaries of the station and of the compartments are not defined by natural features and where these boundaries traverse forest cover, a line of sufficient width to be discernible on aerial photographs should be cut out. A minimum width of 9 feet is recommended.

Boundaries of long-term research projects and demonstration areas larger than one acre in size should be cut out to a width of 6 feet. Trees on the inner side of the cut line should be painted.

The boundaries of long-term research and demonstration plots smaller than one acre should be painted and scribed.

The boundaries of projects slated for completion in three years or less need only be marked with plastic tape. If it is planned to convert the project to a demonstration area following completion of

the research work, the boundary trees should be painted and scribed.

The boundaries of areas to be cut over are to be blazed (bark only removed with a vertical stroke) on trees which are not to be felled. Wherever feasible, cull trees and trees of small diameter should be selected for blazing.

To facilitate field identification of reserved areas on a systematic basis the following colours of paint or plastic ribbon are to be used when marking the boundaries of the classes of area specified.

White - research projects only.

Yellow - demonstration areas other than ecological reserves.

Blue - ecological reserves.

Red - will be used only for marking trees in silvicultural operations.

Orange - will be used only for marking out site trails and other lines not forming boundaries.

Map Records

To maintain a continuous and current record of reserved areas and forest operations on the station, all proposed projects, demonstration areas and cutting areas are to be accurately located on maps which are to be submitted to the Liaison and Services Section.

These location maps are to be at a scale of 1 inch to 20 chains and the boundaries of the area are to be tied into a permanent survey point. A brief explanatory statement is to accompany each map.

A master set of maps will be maintained by the Liaison and Services Section for each class of area:

1. Research areas
2. Demonstration areas
3. Management areas (a) Silvicultural treatment
(b) Standard cutting

The master maps are to be on overlay material. The boundaries of areas shown on the location maps are to be transferred to the master sets as soon as the projects and demonstration areas are established or cutting is completed. The location maps are then to be filed.

Demonstration Areas

Pilot scale demonstrations of research carried out by regional personnel should be instituted as soon as possible following the determination of positive results from suitable projects.

The demonstration of practices and research results obtained from sources outside of the region can be established when it is deemed that they are applicable to conditions existing on the station.

These demonstrations should be of the most recent practices producing positive results for problems existing in the region.

Demonstration areas will be established wherever suitable conditions are available in reasonably accessible areas, preferably near a roadside.

It would be highly desirable to group the areas whenever grouping is feasible but suitability of the area should have priority over arbitrary grouping when location is being determined. Consequently there will be no restriction of establishment within pre-designated blocks.

Reserves

Ecological Reserves

These areas will be examples of both representative and unusual ecosystems which occur on the station. They will be reserved indefinitely for the study of natural succession and for any short term studies that would not disturb natural development. Cutting or the removal of any material will not be permitted.

Ecological reserves will include both forested and non-forested types and would vary in size from 0.1 acres to 25 acres or larger where required.

In the non-productive category reserves could include swamps, muskegs, hang-moors, alpine meadows, gravel bars, erosion slopes, grasslands, stream courses, river banks, lake beaches, beaver ponds, natural ponds and bare rock outcrops.

In the forested categories they could include watersheds and examples of the oldest undisturbed stands of representative covertypes on the station. Younger stands of the less common species on the station should also be reserved.

Upon establishment a complete description of the reserve is to be carried out to establish a record of ecological conditions currently in existence. Periodic checks will be made of each reserve to record successive changes in conditions. This work should be carried out by or in consultation with an ecologist.

Older-aged Stands

In the normal course of operational management stands will be cut at financial rotation age. To provide for study and observation

of stands beyond this age, healthy stands of the older age classes will be reserved until they start showing signs of physical deterioration of commercial volume.

Superior Stands and Superior Trees

Where individual superior trees or superior stands, which are well above the average for the station, occur, these will be reserved to provide seed collection sources and specimens for observation and study.

Physiographic Sites

Examples of the common physiographic sites bearing the predominant covertypes and vegetation for the site will be selected and soil pits will be excavated for study and demonstration.

Phenological Observation Areas

Phenological observation areas representative of ecologically (particularly altitudinally) different environments should be established for each tree species to provide records of locally seasonal and periodic variations that would be pertinent to research and silvicultural programs.

Site Trails

Trails illustrative of distinctly different site conditions within reasonable walking distances should be established for demonstration purposes. Other trails emphasizing other interesting aspects

of the local flora and fauna that would appeal to the lay public should also be considered. These trails must be well laid out and properly marked to be most effective.

Cultural Areas

Cultural areas may be established for either research or operational purposes and provide a prime demonstration media for forestry practices.

Plantations

A planting program should be instituted which would provide a series of age classes of native and exotic species. There are four conditions which would make a continuous planting program both feasible and necessary.

1. Regeneration is generally not adequate following commercial clear-cutting in lodgepole pine stands.

2. There is presently more area in lodgepole pine than would be required for future research use.

3. The area is poorly endowed in the number of native species which limits the scope for its use for research purposes.

4. Plantations of exotics should be established for research purposes in advance of any possible future commercial excursions into this practice.

On the average 30 acres per year should be made available for the planting of exotic species. The plantations should range from 5 to 10 acre blocks for a species but where circumstances dictate they may

be of any convenient size.

Arboretum

An arboretum of exotic species will be established in a clearing of about 20 acres along the Forestry road just east of Lusk Creek.

The purpose of the arboretum will be to provide an area for a small-scale test of the survival capabilities of exotics in the climate of the locality. In this way a maximum number of species and varieties can be empirically tested with a minimum outlay in time and expense.

Priority will be given to species of the interior of British Columbia and of Eastern Canada, both hardwoods and softwoods.

The plantings will be carried out in clumps of 5 or more trees of the same species. A minimum of two well separated clumps of each species will be established to minimize the possibility of loss through destruction. Each clump will be individually fenced for protection from trampling and browsing.

To eliminate the possibility of mortality due to factors other than climate, the arboretum plantings will be planted and tended to provide for the greatest possibility of survival.

All nursery stock planted should be healthy and the seed source of the material should be known. Sources of stock could be federal government research stations, provincial government nurseries or commercial nurseries. Other possible sources should also be investigated.

Where nursery stock of a desired species is not available, seed may be obtained and the stock can be produced using the facilities at the station.

A water hole will be excavated at the site to provide a convenient source for the arboretum.

Nurseries

It is proposed to establish a forest nursery at the station at the earliest opportunity to provide for the following uses:

1. Investigations into local nursery problems.
2. Demonstration of nursery practices.
3. Production of nursery stock for research and operational use.
4. Development of nursery equipment and techniques.
5. Production of provenance stock for field testing in southwestern Alberta. (Stock from other nurseries may not survive field planting).
6. A transplant area for stock received from other sources.

The nursery will be located near the arboretum if a suitable site is available. Ten acres will be reserved for nursery use but the area will be developed only as required.

Seed Orchards

A greater emphasis is being placed on artificial regeneration practices and larger quantities of good quality seed from superior trees, will be in demand to try to create high quality, high yield stands.

It is proposed that seed orchards of native and selected exotic species be established on the station to develop techniques in the

operation of seed orchards and to provide for future demand of high quality seed.

Terminated Research Projects

Any research areas of projects that have been officially terminated but are useful for demonstration purposes will be reserved.

High Yield Stands

Selected well-stocked stands of high vigour will be treated by thinning, pruning, fertilizing and otherwise tended to produce high volumes of quality wood.

Roads

All proposed road building must be approved by the management forester prior to any construction work being undertaken. A map of the exact location of the proposed road is to be submitted to the Liaison and Services Section sufficiently in advance of the intended date of commencement of construction to permit a ground inspection of the proposed route.

Proposed roads must avoid the destruction of any research and demonstration areas. Where access across these areas is planned, the matter is to be referred to the Regional Director.

Fire Protection

No open fires are permitted on the station forest at any time. When burning is to be carried out in the normal course of slash and

refuse disposal by authorized station personnel, adequate precautionary measures are to be taken to prevent the accidental spread of fire into the forest area.

9 Personnel are requested to comply with reasonable precautions in the use of smoking materials, particularly regarding the use of lighters instead of matches during the fire season while working in the woods.

Power saw operators must carry fire extinguishers.