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- Progress Report, 1962. -

PROVENANCE STUDIES IN EUROPEAN LARCH

(Project K-62)

by

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PROVENANCE STUDIES IN EUROPEAN LARCH

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INTRODUCTION

Ten strains of European larch (Larix decidua Mill), obtained through the offices of the International Union of Forest Research Organizations, were planted on the Kananaskis Forest Experiment Station (115° 10' W, 51° 00' N.) in the spring of 1950. The source of seed for each strain is shown below.

Source	Altitude-meters	Number planted
Ried-Pfund (German Alps)	1800 - 2000	30
Steinback-Greiss (German Alps)	1300 - 2000	70
Michael (German Alps)	1600 - 1800	20
Lotschental (Wallis) (Swiss Alps)	1500	20
Fendo (Italian Alps)	1200 - 1300	10
Obervellach (German Alps)	1000 - 1200	30
Pitstal (German Alps)	900 - 1000	49
Murau - Paal (German Alps)	900 - 1000	40
Murau - Liptovsky Hradock - Tatra Mtns. (N. Slovakia)	960 - 1045	70
Waldstein (German Alps)	500 - 600	81

This report describes growth and survival during the first ten year period.

METHODS AND MATERIALS

The stock was grown in the Kananaskis nursery and planted out, 6 x 6 foot spacing, as 3 - 3 stock in the spring of 1950. A formal experimental design was not employed because of the small and variable numbers of seedlings available.

The planting site is a burned-over floodplain at an elevation of 4500 feet in the main Kananaskis River valley. The soil is a well drained alluvium which changes, at an unknown depth, from a sandy loam to a coarse, gravelly and cobbly outwash. The site is considered below average for productivity.

A small planting of Siberian larch (Larix sibirica Ledeb;) obtained as 2 - 2 stock from the forest nursery at Indian Head, Saskatchewan was also included in the test. The source of this material is not definitely known but it is thought to be a lowland strain.

Also available for comparison is a plantation of Siberian larch believed to originate from high altitude in the Ural Mountains. This plantation is located on the same flood plain but moisture conditions are generally more favourable.

RESULTS

Survival and height growth have been recorded annually since planting. The results are shown in Tables 1 and 2.

Table 1. Percentage Survival of Planted Larch in 1960

Source	Source Elevation-meters	Number planted	Age from seed - years	Percentage Survival in 1960
European larch - Planted 1950				
Ried-Pfund	1800 - 2000	30	17	73
Steinbach-Greiss	1800 - 2000	70	17	34
Michael	1600 - 1800	20	17	60
Lotschental	1500	20	17	30
Fendo	1200 - 1300	10	17	30
Obervellach	1000 - 1200	30	17	50
Pitstal	900 - 1000	49	17	76
Murau-Paal	900 - 1000	40	17	65
Murau-Liptovsky	960 - 1045	70	17	67
Waldstein	500 - 600	81	17	52
Siberian larch				
Indian Head	Lowland	100	15	25
Ural Mtns.	Highland	476	18	56

Table 2. Height Growth of Planted Larch.

Source	Age from seed - years	Mean total height-inches 1950	1955	1960	Height growth-inches 1955 - 60
European larch - Planted 1950					
Ried-Pfund	17	18	19	50	31
Steinbach-Greiss	17	12	10	32	22
Michael	17	15	14	50	36
Lotschental	17	9	7	14	7
Fendo	17	15	12	34	22
Obervellach	17	11	11	39	28
Pitstal	17	11	11	33	22
Murau-Paal	17	12	9	24	15
Murau-Liptovsky	17	20	18	64	46
Waldstein	17	12	12	45	33
Siberian Larch					
Indian Head	15	14	14	42	28
Ural Mtns.	18	-	-	80	-

The European larch were severely browsed by Elk (Cervus canadensis nelsoni) until the plantings were fenced in the fall of 1954. As a result, height growth to 1955 was negative. The Siberian larch, which is not fenced, is still severely browsed each year.

In addition to the browsing, all larch plantings were severely damaged by larch sawfly infestation in 1958, 1959 and 1960. The trees were sprayed in 1958 and 1959 but the majority of terminal leaders and branch ends were dead in 1960.

Both survival and height growth has suffered from browsing and insect attack in all plantings. Under the circumstances, comparison of strains or species may be misleading at this time.