

Landtype Summary **LANDTYPE 323**

SETTING - This landtype contains rolling foothills and drumlins, as shown in the block diagram. It occurs in the east Purcell and Salish Ranges.

LANDTYPE COMPONENTS - Soils have silt loam topsoils and gravelly silt loam to silty clay loam subsoils. They have formed in calcareous glacial till. Native vegetation is mixed coniferous forest.

ADJOINING LANDTYPES - Adjacent landtypes are valley bottoms and convex mountain slopes.



Topography

<u>Slope %</u>	<u>Aspect</u>	<u>Elevations</u>	<u>Rock Outcrop %</u>
15-60	Variable	2500-4500'	< 5

This landtype contains rolling foothills and drumlins. Slopes are complex with convex upper slopes and concave lower slopes. Drumlins are smooth, rounded hills that are teardrop- or cigar-shaped. They are formed by glaciers overriding glacial debris. Their long axis is parallel to the direction of ice flow. The slope facing northwest is steep, and the southeast facing slope is gentle. Drumlins do not have a defined surface drainage pattern. Potholes occur occasionally. The drainage pattern is random. Sediment delivery efficiency is low. Included are areas of steep mountain sideslopes. The drainage pattern is closely spaced parallel-to-dendritic.

Geology

This landtype contains soils formed in calcareous glacial till. The Piegan and Siyeh Formations of the Precambrian Belt Supergroup are sources of the lime in the till.

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

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GENERAL SERVICES ADMINISTRATION

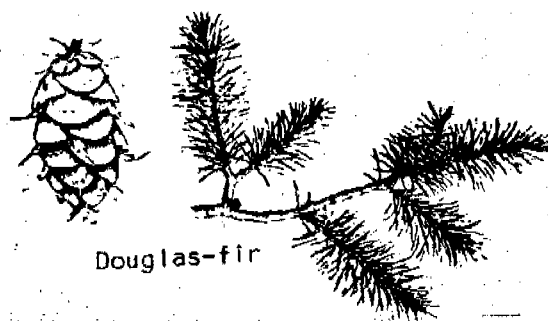
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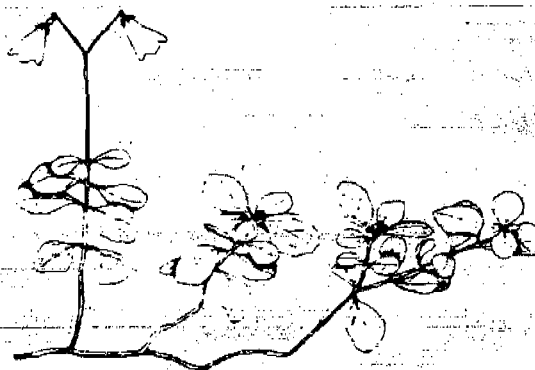
Vegetation

The major habitat types are Douglas-fir/twinflower (PSME/LIBO), Douglas-fir/snowberry (PSME/SYAL) and Douglas-fir/pinegrass (PSME/CARU). Included as a similar habitat type on north aspects is Douglas-fir/twinflower (PSME/LIBO). Moderate timber productivity is associated with these habitat types.



Douglas-fir

Small areas of dissimilar habitat types are included. Subalpine fir/queencup beadlily (ABLA/CLUN) and subalpine fir/twinflower (ABLA/LIBO) habitat types occur on moist sites at higher elevations or cold air pockets in lower elevations. Summer moisture stress does not limit regeneration of these habitat types.



Twinflower

Existing vegetation is a mixture of Douglas-fir, western larch and lodgepole pine. The forest understory contains snowberry, white spirea, russet buffaloberry, kinnikinnick and pinegrass.

Soils

OCCURRENCE AND DISTRIBUTION

The major soil has a gravelly silt loam surface layer and a gravelly silt loam to silty clay loam subsoil. The lower subsoil and substratum are calcareous. Included as similar are soils with surface layers formed in volcanic ash-influenced loess. These soils occupy 80 percent of the landtype.

Small areas of dissimilar soils are included. The dissimilar soils have subsoils and substrata that are noncalcareous. They occupy 20 percent of the landtype.

GENERAL SOIL DESCRIPTION

The surface layer is a light brownish gray, gravelly silt loam, 6-14 inches thick. The subsoil is a brownish yellow gravelly silty clay loam or silt loam, 10-15 inches thick. The substratum is a calcareous very pale brown gravelly silt loam.

See soil description No. 1 for more detail.

CLASSIFICATION

The major soils are fine-silty, mixed frigid Typic Eutroboralfs. The included similar soils with volcanic ash-influenced surface layers are fine-silty, mixed frigid Typic Eutroboralfs. However, should an Andeptic subgroup be defined for Eutroboralfs, these soils would qualify, although the same criteria would have to be used to define Andeptic subgroups within the Cryoboralfs.

The included dissimilar soils with noncalcareous substratums are fine-silty, mixed, frigid Dystric Eutrochrepts, .

Management Implications

TIMBER

This landtype is well suited to timber management. Potential productivity is 50-85 cu ft/A/yr or moderate. The soils are susceptible to compaction due to equipment operation. In early summer soils will be dry and will have a lower susceptibility to compaction. Operating equipment only when the soil is dry, frozen or snow covered helps maintain soil productivity on these soils. On south aspects regeneration is limited by moisture stress and solar insolation. Leaving about 15 tons per acre of 3 inch or larger diameter logging slash helps improve regeneration success and maintain soil productivity. Shelterwood harvest prescriptions can also help.

ROADS

This landtype is moderately suited to road construction. Road construction suitability for the steep slopes is poor. The material exposed by road construction is difficult to revegetate. Road surfaces are dusty when dry and become rutted when wet. Revegetation is limited by droughtiness. Special revegetation practices might be required to reestablish vegetation. Surfacing roads helps control dust and prevent rutting.

WATERSHED

The major watershed management concern is a sediment hazard from road construction due to revegetation limitations and erodible material.

WILDLIFE AND FISHERIES

This landtype offers big game winter habitat. It often supports old growth forest. Streams within this landtype normally contain habitat for trout and whitefish. Lakes within this landtype often contain fish habitat for such species as trout, bass and perch. In some lakes, though, the water is too alkaline for fish.

VISUAL QUALITY AND RECREATION

This landtype has potential for dispersed recreation. Hunting, fishing and viewing are common uses. Visual quality objectives are relatively easy to maintain. Roadcuts on southerly aspects are difficult to revegetate and can be visually evident.

INTERPRETATIONS

Substratum Erodibility	Moderate
Surface Erodibility	Moderate
Sediment Delivery Efficiency	Low
Timber Productivity	Moderate
Regeneration Limitations	Moderate

CLIMATE

Potential Evapotranspiration	Moderate
Distribution of Precipitation	70% Rain 30% Snow
Average Annual Precipitation	25-35"
Snow-free Period	240 Days
Spring Runoff	Mar-Apr

Landtype Summary

LANDTYPE

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SETTING - The landtype contains rounded valley sideslopes, as shown in the block diagram. It occurs in the Purcell, Cabinet and Salish Ranges.

LANDTYPE COMPONENTS - The soils have silt loam topsoils and fine sandy loam subsoils. They are formed in volcanic ash-influenced loess overlying dense glacial till. Vegetation is mixed coniferous forest.

ADJOINING LANDTYPES - Adjacent landtypes are rounded mountain valley sideslopes and ridgetops or terraces or flat valley bottoms.



Topography

<u>Slope %</u>	<u>Aspect</u>	<u>Elevations</u>	<u>Rock Outcrop %</u>
20-60	Northerly	2200-5200'	< 5

This landtype contains glacially rounded mountain valley sideslopes occurring mainly on north aspects. The drainage pattern is dendritic. Sediment delivery efficiency is moderate.

Geology

This landtype contains soils formed in volcanic ash-influenced loess overlying dense glacial till. The underlying bedrock and the rock fragments in the glacial till are derived from argillites, siltites and quartzites of the Precambrian Belt Supergroup.

Vegetation

Habitat types within this landtype vary. In the Cabinet and West Purcell Ranges, the major habitat types are western redcedar/queencup beadlily (THPL/CLUN) and western hemlock/queencup beadlily (TSHE/CLUN). Included as similar habitat types are subalpine fir/queencup beadlily (ABLA/CLUN), grand fir/queencup beadlily (ABGR/CLUN), and grand fir/twinflower (ABGR/LIBO).

Included dissimilar habitat types are subalpine fir/Sitka alder (ABLA/ALSI), subalpine fir/menziesia (ABLA/MEFE), western redcedar/devil's club (THPL/OPHO) and habitat types in the Engelmann spruce series. These habitat types occur around seeps and on stream bottoms. Equipment operation limitations due to wet soils are associated with these habitat types.

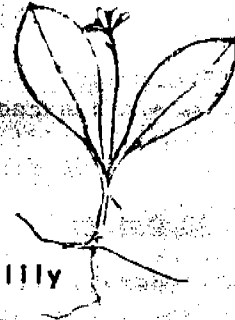
In the Salish and East Purcell Ranges, the major habitat types are subalpine fir/queencup beadlily (ABLA/CLUN), subalpine fir/menziesia (ABLA/MEFE) and subalpine fir/twinflower (ABLA/LIBO). Very high or high timber productivity is associated with the major habitat types.

Included as similar is subalpine fir/blue huckleberry (ABLA/VAGL) and subalpine fir/Sitka alder (ABLA/ALSI). They occur on southerly or westerly aspects. The subalpine fir/Sitka alder occurs in areas of perched water tables and adjacent to streams. Timber productivity is moderate.

Included dissimilar habitat types are Douglas fir/twinflower (PSME/LIBO) and Douglas fir/blue huckleberry (PSME/VAGL).



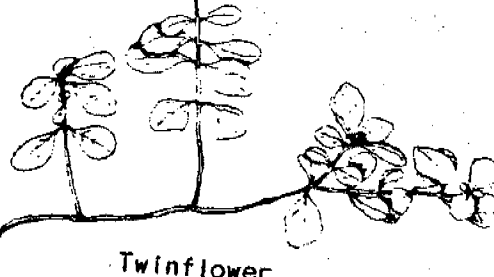
Western Hemlock



Queencup Beadlily



Subalpine Fir



Twinflower

Existing vegetation is a mixture of western hemlock, western redcedar, western white pine, Engelmann spruce, western larch, Douglas-fir, subalpine fir, lodgepole pine and grand fir. Western hemlock, western redcedar, western white pine and grand fir occur mainly in the Cabinet and West Purcell Ranges.

Soils

OCCURRENCE AND DISTRIBUTION

The major soil has a gravelly silt loam surface layer, 7-14 inches thick, formed in volcanic ash-influenced loess. The subsoil is a very gravelly sandy loam formed in dense glacial till. Included as similar are soils with thicker or thinner volcanic ash-influenced surface layers or sandy clay loam subsoils. These soils occupy 85 percent of the landtype.

Small areas of dissimilar soils are included. Soils with darker-colored surface layers occur in depressions. Soils with extremely cobbly subsoils occur on ridges. Both are less productive timber sites. They occupy 15 percent of the landtype.

GENERAL SOIL DESCRIPTION

The surface layer is a reddish brown gravelly silt loam, 7-14 inches thick. The subsoil is a pale brown very gravelly fine sandy loam, 15-30 inches thick. The substratum is a light brownish gray very gravelly sandy loam.

See soil description Nos. 8 and 10 for more detail.

CLASSIFICATION

The major soil is a loamy-skeletal, mixed, frigid Andic Dystrochrept. Included as similar are loamy-skeletal, mixed, frigid Typic Dystrochrepts, medial/loamy-skeletal, mixed, frigid Typic Dystrandrepts and loamy-skeletal, mixed Typic Glossoboralfs.

Included dissimilar soils with dark-colored surface layers are loamy-skeletal, mixed Typic Cryumbrepts. The soils with extremely cobbly subsoils are medial/fragmental, mixed, frigid Typic Vitrandrepts. Soils that occur at higher elevations are loamy-skeletal, mixed Andic Cryochrept.

Management Implications

TIMBER

The landtype is well suited for timber management. Potential productivity is 85-120 cu ft/A/yr or high to very high. Slope steepness limits equipment operation on some parts of the landtype. Compaction of the soil surface layer can lower soil productivity. Operating equipment only when the soil is dry, frozen or snow-covered helps to maintain soil productivity. Glacial till derived from the Ravalli Formation has very high bulk densities and greatly restricts water percolation, creating perched water tables. Trees on these areas have very restricted root movement and are highly susceptible to windthrow hazard.

ROADS

The landtype is well suited for road construction although slope steepness increases the quantity of material to be excavated in part of the area. The material exposed by road construction tends to slump on steep cutbanks and is difficult to revegetate. Revegetation is also limited by surface crusts which form on exposed material. Seeding as soon as possible after construction helps improve revegetation success. The areas with perched water tables require extra drainage to move the water across the road.

WATERSHED

The major watershed management concern is a sediment hazard from road construction due to cutbank slumping, erosion and debris slides.

WILDLIFE AND FISHERIES

This landtype supports big game summer habitat. It sometimes contains old growth forest and cavity habitat. It contains some grizzly food sources and has potential sites for goshawk nests. Streams within this landtype support resident populations of trout and provide some spawning habitat.

VISUAL QUALITY AND RECREATION

This landtype has good potential for dispersed recreation use. Wood-gathering, hiking, camping, fishing, hunting, berry-picking, driving for pleasure and winter recreation are common uses. Visual quality objectives are relatively easy to maintain except on steep slopes.

■■■■■ INTERPRETATIONS ■■■■■

Substratum Erodibility	Moderate
Surface Erodibility	High
Sediment Delivery Efficiency	Moderate
Timber Productivity	(1)Very High (2)High
Regeneration Limitations	Slight

■■■■■ CLIMATE ■■■■■

Potential Evapotranspiration	Low
Distribution of Precipitation	60% Rain 40% Snow
Average Annual Precipitation	
(1)35-50" (2)25-35"	
Snow-free Period	210 Days
Spring Runoff	Apr-May

(1) Western hemlock (TSHE) and western redcedar (THPL) habitat types on the Cabinet and West Purcell Ranges.

(2) Subalpine fir (ABLA) and Douglas-fir (PSME) habitat types on the Salish and East Purcell Ranges.

Landtype Summary LANDTYPE 555

SETTING - This landtype contains mountain slopes and ridgetops on north aspects, as shown in the block diagram. It occurs in the Cabinet and Bitterroot Ranges.

LANDTYPE COMPONENTS - The soils have silt loam topsoils and very gravelly sandy loam subsoils. They have formed in volcanic ash-influenced loess overlying material weathered from the underlying bedrock. Native vegetation is a mixed coniferous forest.

ADJOINING LANDTYPES - Adjoining landtypes are terraces, valley bottoms and ridgetops.



Topography

<u>Slope %</u>	<u>Aspect</u>	<u>Elevations</u>	<u>Rock Outcrop %</u>
25-50	Variable	3500-6000'	15-25

The landtype contains the upper third of mountain slopes. The drainage pattern is dendritic and consists of first and second order drainages which frequently follow bedrock joints and fractures. Sediment delivery efficiency is moderate.

Geology

The landtype contains soils formed in volcanic ash-influenced loess overlying material weathered from the underlying bedrock. The underlying bedrock is argillites, siltites and quartzites of the Precambrian Belt Supergroup.

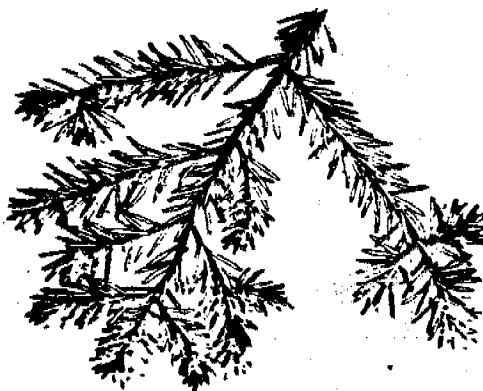
Vegetation

The major habitat types are subalpine fir/queencup beadlily (ABLA/CLUN), subalpine fir/menziesia (ABLA/MEFE) and mountain hemlock/menziesia (TSME/MEFE). Included similar habitat types at lower elevations are western hemlock/queencup beadlily (TSHE/CLUN) and grand fir/queencup beadlily (ABGR/CLUN). High timber productivity is associated with these habitat types.

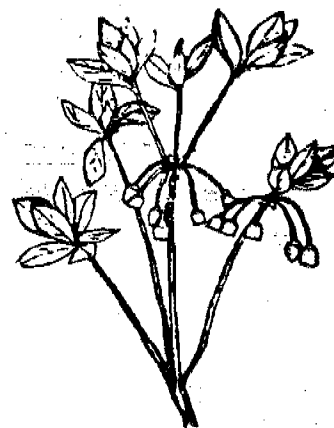
Small areas of dissimilar habitat types are included. Subalpine fir/beargrass (ABLA/XETE), mountain hemlock/beargrass (TSME/XETE) and subalpine fir/blue huckleberry (ABLA/VAGL) occur on ridges. Douglas-fir/ninebark (PSME/PHMA) occurs at lower elevations. Moderate timber productivity is associated with these habitat types.

Existing vegetation is a mixture of subalpine fir, Engelmann spruce, mountain hemlock, western larch, Douglas-fir, western white pine and lodgepole pine.

Sitka alder, willow and menziesia occur in stringers on wet areas where shallow bedrock is intermixed with deeper soils. These areas are small concave basins that occur at drainage heads.



Subalpine Fir



Menziesia

Soils

OCCURRENCE AND DISTRIBUTION

The landtype is a complex of soil and rock outcrop. Rock outcrop occurs on upper slopes and ridges and occupies 20 percent of the landtype. The major soil has a silt loam surface layer, 7-12 inches

thick, formed in volcanic ash-influenced loess. The subsoil is a very gravelly sandy loam formed in material weathered from the underlying bedrock. Included similar soils have thicker surface layers. These soils occupy 85 percent of the landtype.

Small areas of dissimilar soils are included. Soils with darker-colored surface layers occur in basins at drainage heads. Shallow soils occur on upper slopes and ridges and are less productive timber sites. They occupy 15 percent of the landtype.

GENERAL SOIL DESCRIPTION

The surface layer is normally a dark yellowish brown gravelly silt loam, 7-12 inches thick. However, where the forest understory is dominated by deciduous shrubs, the surface 4 to 6 inches is very dark brown. The subsoil is a yellowish brown very gravelly sandy loam, 10-19 inches thick. The substratum is a light olive brown extremely gravelly sandy loam underlain by bedrock at depths greater than 40 inches.

See soil description No. 15 for more detail.

CLASSIFICATION

The major soils are loamy-skeletal, mixed Andic Cryochrepts. The included similar soils with thicker surface layers are medial over loamy-skeletal, mixed Typic Cryandeps.

The dissimilar soils with darker-colored surface layers are loamy-skeletal, mixed Typic Cryumbrepts. The dissimilar shallow soils are loamy-skeletal, mixed Lithic Cryochrepts.

Management Implications

TIMBER

This landtype is moderately suited for timber management. Potential productivity is 50-120 cu ft/A/yr or moderate to high. Because slope steepness limits equipment operation, cable or aerial logging systems should be considered. Compaction of the soil surface layer can lower soil productivity. Operating equipment only when the soil is dry, frozen or snow-covered helps to maintain soil productivity.

Regeneration is limited by shrub competition in the small basins at the heads of drainages. It is also limited by frost damage in the shallow soils near ridgetops.

ROADS

The landtype is well suited for road construction, although

non-rippable bedrock limits excavation on parts of the landtype. Roads should perform well with routine maintenance.

WATERSHED

No special watershed protection measures are required for practices normally applied to this landtype.

WILDLIFE AND FISHERIES

This landtype offers potential summer habitat for mule deer and elk. It also contains grizzly bear food sources.

VISUAL QUALITY AND RECREATION

This landtype has high potential for recreation. Hunting, hiking, berry-picking and scenic viewing are common uses. Visual quality objectives are difficult to maintain due to steep slopes.

INTERPRETATIONS

Substratum Erodibility	Low
Surface Erodibility	Moderate
Sediment Delivery Efficiency	Moderate
Timber Productivity	Moderate-High
Regeneration Limitations	High

CLIMATE

Potential Evapotranspiration	Moderate
Distribution of Precipitation	40% Rain 60% Snow
Average Annual Precipitation	35-55"
Snow-free Period	210 Days
Spring Runoff	Apr-May