Horse Creek Study Watersheds Metadata Report
(HOR)

Boise, Idaho

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Research Area Information

Horse Creek Study Watersheds

Research Area Information

Harvest URL - Option 1

http://www.fs.fed.us/rm/boise/soil_water/Harvester/hor_climate.txt

Harvest URL -Option 2

http://www.fs.fed.us/rm/boise/teams/soils/harvester/hor_hydro.txt

Site north bounding coordinate (decimal degree) 46.01119N

Site west bounding coordinate (decimal degree) 115.44356W

Site south bounding coordinate (decimal degree) 45.95761N

Site east bounding coordinate (decimal degree) 115.32529W

Experimental Design

The Horse Creek administrative-research study is a paired watershed study, designed and initiated in 1965 to determine feasible methods to provide access to and harvest the timber resource in the mountainous terrain of north central Idaho. The East Fork of Horse Creek serves as an undisturbed control watershed. The calibration period extends from 1965 up to the summer of 1978 when road construction activities began in the Main Fork of Horse Creek watershed. The evaluation of erosion and hydrologic consequences of various forest management activities were conducted by the Rocky Mountain Research Station and the Northern Region of the U.S. Forest Service.

USGS Harvest URL

http://gce-lter.marsci.uga.edu/harvest/usgs/hor_lter.txt

Meteorlogical Stations

Buck Meadows

Meteorological Station

Latitude (decimal degrees) 45.99028N
Longitude (decimal degrees) 115.44014W
Elevation (meters; a.m.s.l.) 1707
Begin Date..... September 1965
Topography

Located in a meadow with a 5-10% slope in the headwaters of the Main Fork of Horse Creek

Surface

Forbs and grass

Area Description

Open meadow

Air Temperature

Begin Date..... August 1966
Data Logger Sampling Interval..... Continuous trace on drum chart
Summary Interval ..... Maximum and minimum extracted from the continuous trace
Instrumentation Description

Belfort hygrothermograph - bimetal

Precipitation

Begin Date..... October 1965
Data Logger Sampling Interval..... Continuous trace on drum chart
Summary Interval .....Daily
Instrumentation Description

Stevens Type Q12M recording gage

Lower Horse

Meteorological Station

Latitude (decimal degrees) 45.98994N
Longitude (decimal degrees) 115.32677W
Elevation (meters; a.m.s.l.) 1268
Begin Date..... September 1965
Topography

Located in a cleared heliport on a flat ridge top near the confluence of the Main and East Forks of Horse Creek

Surface

Low shrubs and forbs

Area Description

Cleared helispot surrounded by trees

Air Temperature

Begin Date..... January 1966
Data Logger Sampling Interval..... Continuous trace on drum chart
Summary Interval ..... Maximum and minimum extracted from the continous trace
Instrumentation Description

Belfort hygrothermograph - bimetal

Precipitation

Begin Date..... October 1965
Data Logger Sampling Interval..... Continuous trace on drum chart
Summary Interval ..... daily
Instrumentation Description

Stevens Type Q12M recording gage

Watershed

East_300 Watershed

Watershed Spatial Characteristics

North bounding coordinate (decimal degrees) 45.98949N
West bounding coordinate (decimal degrees) 115.43284W
South bounding coordinate (decimal degrees) 45.95761N
East bounding coordinate (decimal degrees) 115.32622W
Area (hectares) 1442
Aspect (degrees azmuth) 68
Minimum watershed elevation (meters; a.m.s.l) 1253
Maximum watershed elevation (meters; a.m.s.l) 1838

Watershed Ecological Characteristics

Mean annual precipitation (millimeters) ... About 1170 mm at an elevation of 1707 meters
Slope (Percent) 36%
Slope description

Median side slope

Channel length (meters) 37829
Channel length description

Measured as blue lines on USGS quadrangles

Drainage density (km/km2) 2.62
Mean snowpack description

About 70% of annual precipitation occurs as snowfall in November through April

Watershed Descriptions

Pre-treatment vegetation

The watersheds are timber covered with the exception of scattered occurrences of wet bottom land along the major streams and several small meadows and alder glades along the western drainage boundary. The most extensive habitat type in the area is Abies grandis/Clintonia uniflora. Other commonly occurring habitat types include Abies lasiocarpa/Xerphyllum tenax, Thuja plicata/Clintonia uniflora, Abies lasiocarpa/Clintonia uniflora, Abies grandis/Xerphyllum tenax, and Abies lasiocarpa/ Menziesia ferruginea. Tree species found in substantial numbers include grand fir (Abies grandis [Dougl.} Forbes), western red cedar (Thuja plicata Donn), western

larch (Larix occidentalis Nutt.), Engelmann spruce (Picea engelmannii Parry) and lodgepole pine (Pinus contorta var. latifolia Engelm.). Douglas-fir (Pseudotsuga menziesii var. glauca [Beissn.] Franco) and ponderosa pine (Pinus ponderosa Dougl.) also occur on some of the south facing slopes.

Soil description

The soils are Inceptisols formed from the weathering of predominantly metasedimentary parent material and modified by deposition of loessial material of volcanic origin. The majority of the area has a mosaic of four soils, distributed partially on the basis of slope gradient and topographic position. The two most extensive soils are Andic Dystrochrepts, one coarse loamy and the other loamy skeletal. Second in extent are Typic Vitrandepths, one medial over loam and the other medial over loamy skeletal. Both skeletal soils are usually associated with ridgetop positions and the Vitrandepts with less steep landscapes. In the headwaters at elevations above about 1,525 m are occurrences of coarse loamy,mixed, frigid Typic Haplumbrepts, usually formed under seral alder or bracken fern; coarse loamy, mixed, frigid Typic Vitrandepts formed under grand fir habitat types; and coarse loamy, mixed, Entic Cryandepts formed under subalpine fir habitat types. Aquepts occur locally in low lying portions of the landscape, adjacent to streams and in headwater areas.

Geology description

The watersheds are located in the borderzone of the Idaho Batholith, a complex series of related igneous intrusions that contact Precambrian metasedimentary rock of the Belt Super Group. The sedimentary rock was altered by other metamorphic episodes prior to the batholith intrusions. The metasedimentary materials vary and intergrade from quartz-biotite-plagioclase gneiss and schist to biotite-plagioclase quartzite (Greenwood and Morrison, 1973).

Treatment History

No management activities have occurred within the East Fork Horse Creek drainage. This watershed serves as the control watershed.

Main_200 Watershed

Watershed Spatial Characteristics

North bounding coordinate (decimal degrees) 46.01119N
West bounding coordinate (decimal degrees) 115.44356W
South bounding coordinate (decimal degrees) 45.97739N
East bounding coordinate (decimal degrees) 115.32529W
Area (hectares) 1688
Aspect (degrees azmuth) 86
Minimum watershed elevation (meters; a.m.s.l) 1250
Maximum watershed elevation (meters; a.m.s.l) 1805

Watershed Ecological Characteristics

Mean annual precipitation (millimeters) ..... 1170 mm at an elevation of 1017 meters

Slope (Percent) 31%

Slope description

Median side slope

Channel length (meters) 45073

Channel length description

Measured as blue lines on USGS quadrangles.

Drainage density (km/km2) 2.67

Mean snowpack description

About 70% of annual precipitation occurs as snowfall in November through April

Watershed Descriptions

Pre-treatment vegetation

The watersheds are timber covered with the exception of scattered occurrences of wet bottom land along the major streams and several small meadows and alder glades along the western drainage boundary. The most extensive habitat type in the area is Abies grandis/Clintonia uniflora. Other commonly occurring habitat types include Abies lasiocarpa/Xerphyllum tenax, Thuja plicata/Clintonia uniflora, Abies lasiocarpa/Clintonia uniflora, Abies grandis/Xerphyllum tenax, and Abies lasiocarpa/ Menziesia ferruginea. Tree species found in substantial numbers include grand fir (Abies grandis [Dougl.} Forbes), western red cedar (Thuja plicata Donn), western larch (Larix occidentalis Nutt.), Engelmann spruce (Picea engelmannii Parry) and lodgepole pine (Pinus contorta var. latifolia Engelm.). Douglas-fir (Pseudotsuga menziesii var. glauca [Beissn.] Franco) and ponderosa pine (Pinus ponderosa Dougl.) also occur on some of the south facing slopes.

Soil description

The soils are Inceptisols formed from the weathering of predominantly metasedimentary parent material and modified by deposition of loessial material of volcanic origin. The majority of the area has a mosaic of four soils, distributed partially on the basis of slope gradient and topographic position. The two most extensive soils are Andic Dystrochrepts, one coarse loamy and the other loamy skeletal. Second in extent are Typic Vitrandepths, one medial over loam and the other medial over loamy skeletal. Both skeletal soils are usually associated with ridgetop positions and the Vitrandepts with less steep landscapes. In the headwaters at elevations above about 1,525 m are occurrences of coarse loamy,mixed, frigid Typic Haplumbrepts, usually formed under seral alder or bracken fern; coarse loamy, mixed, frigid Typic Vitrandepts formed under grand fir habitat types; and coarse loamy, mixed, Entic Cryandepts formed under subalpine fir habitat types. Aquepts occur locally in low lying portions of the landscape, adjacent to streams and in headwater areas.

Geology description

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Treatment History

All management activities have been confined to the Main Fork Horse Creek watershed. These management activities include: 6.975 km (11.1 ha) of midslope road construction on the north side of the Main Fork of Horse Creek in the summer of 1978; 4.837 km (7.5 ha) of midslope road construction on the north side of the Main Fork of Horse Creek in the summer of 1979; timber harvest in 8 harvest units ranging in size from 3.6 to 14.2 ha (total area 73.8 ha) on the north side of the Main Fork of Horse Creek in the summer of 1981; broadcast burning in the harvest units in the fall of 1981 and 1 unit in the spring of 1982; 9.009 km (13.5 ha) of near ridgetop road construction on the south side of the Main Fork of Horse Creek in 1983 and 1984.

Gauging Stations

East_300

Hydrologic Gauging Station

Latitude (decimal degrees) 45.98666N

Longitude (decimal degrees) 115.33102W

Elevation (meters; a.m.s.l.) 1253

Begin Date..... September, 1965

Watershed Area (hectares) 1442

Associated meteorological station

No climatic stations within this watershed. Use Buck Meadows (BUCK_MDWS) and Lower Horse (LW_HORSE) in adjacent watershed

History

Instrumentation is serviced approximately monthly during October to June and approximately biweekly during the remainder of the year. Stage is measured in the flume and used to adjust the stage recorder, if needed.

Weir Description

8 ft Parshall Flume; Stevens A35 Water Level Recorder

Stream Discharge

Data Logger Sampling Interval... Data extracted from strip charts at hourly intervals and at changes in slope of the trace

Summary Interval ..... daily

Main_200

Hydrologic Gauging Station

Latitude (decimal degrees) 45.99141N

Longitude (decimal degrees) 115.33010W

Elevation (meters; a.m.s.l.) 1250

Begin Date..... September, 1965

Watershed Area (hectares) 1688

Associated meteorological station

Buck Meadows (BUCK_MDWS) and Lower Horse (LW_HORSE)

History

Instrumentation is serviced approximately monthly during October to June and approximately biweekly during the remainder of the year. Stage is measured in the flume and used to adjust the stage recorder, if needed.

Weir Description

8 ft Parshall Flume; Stevens A35 Water Level Recorder

Stream Discharge

Data Logger Sampling Interval... Data extracted from strip charts at hourly intervals and at changes in slope of the trace

Summary Interval ..... daily