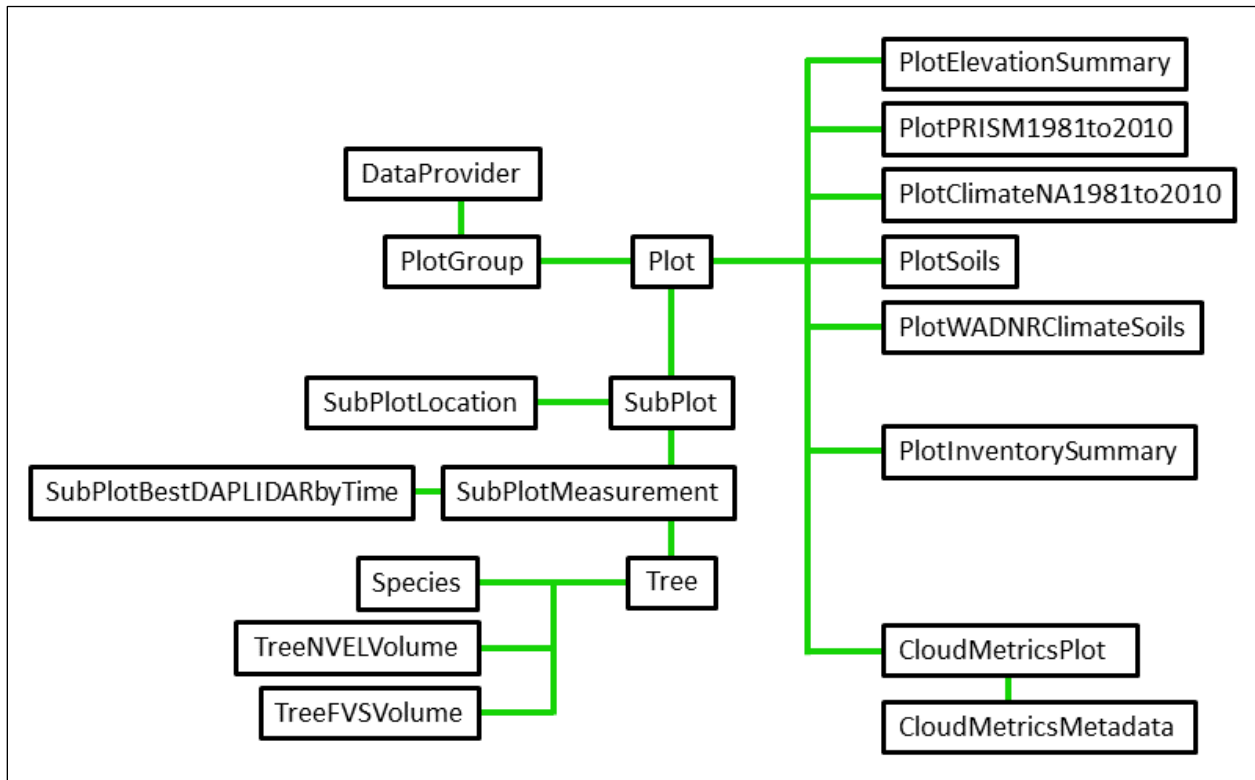


Washington Forest Inventory Database Structure

Version 1; June 30, 2021



DataProvider

The organization that measured the plots and provided them to UW.

Field	Data Type	Description
DataProviderID	smallint	unique, ID for each data providing organization
DataProviderType	smallint	municipal (4), tribal (5), state (6), or federal (8)
Name	nvarchar(128)	data provider name
Abbreviation	nvarchar(32)	abbreviated data provider name

PlotGroup

A set of plots measured together as part of a project, or in a particular year or location. The groupings are determined by the data provider.

Field	Data Type	Description
PlotGroupID	uniqueidentifier	unique, auto-generated ID for each plot group
DataProviderID	smallint	foreign key to join to the DataProvider table
Name	nvarchar(128)	plot group name

Field	Data Type	Description
Description	nvarchar(512)	description of the plot group
MeasurementYear	smallint	year in which the plots in the plot group were measured, or the first year plots were measured if the plot group spans multiple years
MeasurementStartDate	date	date of the first plot measurement. If a plot has a measurement year, but no month or day, it is given the measurement date January 1.
MeasurementEndDate	date	date of the last plot measurement
FileDate	date	create or modify date on the source file for the plot data
IntegratedDate	date	date the plots were integrated into the database
Units	nvarchar(16)	"feet" or "meters"
SourceEPSG	nvarchar(16)	EPSG code for the coordinate system / projection in which the data was delivered
ContactPersonUserID	uniqueidentifier	foreign key to join to the User table; not yet implemented

Plot

The primary plot record. All plots are made up of subplots, usually a “large” subplot used for measuring large trees and snags, and a “small” subplot used for measuring seedlings and or saplings. Some plots are also have a “medium” subplot used for measuring specific attributes on a subset of large trees.

Field	Data Type	Description
PlotID	uniqueidentifier	unique, auto-generated ID for each plot
PlotGroupID	uniqueidentifier	foreign key to join to the PlotGroup table
SourcePlotID	nvarchar(128)	plot ID number, according to the Data Provider, for each plot

SubPlot

All inventory and location data are associated with subplots. Each inventory plot is often made up of large and small plots used to measure trees of different sizes, or to collect specific attributes on a subset of trees.

Field	Data Type	Description
SubPlotID	uniqueidentifier	unique, auto-generated ID for each subplot
PlotID	uniqueidentifier	foreign key to join to the Plot table
RadiusFt	decimal(38,8)	the SubPlot's radius in feet
AreaSqFt	decimal(38,8)	the SubPlot's area in square feet
Description	nvarchar(256)	"Small Plot", "Medium Plot", or "Large Plot"

SubPlotLocation

The locations of the SubPlot center points. These data are broken into their own table in order to limit access to exact plot locations if required by plot data providers; data from the SubPlot table can be provided without data from the SubPlotLocation table.

Field	Data Type	Description
SubPlotID	uniqueidentifier	foreign key to join to the SubPlot table
X_Source	decimal(38,8)	the X coordinate of the SubPlot center point in the coordinate system in which the data was provided
Y_Source	decimal(38,8)	the Y coordinate of the SubPlot center point in the coordinate system in which the data was provided
X_EPSG2927	decimal(38,8)	the X coordinate of the SubPlot center point in EPSG 2927
Y_EPSG2927	decimal(38,8)	the Y coordinate of the SubPlot center point in EPSG 2927
Lon_EPSG4326	decimal(38,8)	the longitude of the SubPlot center point in EPSG 4326
Lat_EPSG4326	decimal(38,8)	the latitude of the SubPlot center point in EPSG 4326
fvsVariant	nvarchar(3)	the FVS variant in which the SubPlot center point is located
usfsEcomapSection	nvarchar(48)	the USFS Ecomap Section in which the SubPlot center point is located
epaEcoregionL3	nvarchar(5)	the EPA Level 3 Ecoregion in which the SubPlot center point is located
WADNR_onMLP	bit	whether or not the SubPlot center point is located on a Washington DNR managed land parcel
WADNR_PARCEL_SYST_ID	int	the Washington DNR parcel ID, if the SubPlot center point is located on a Washington DNR managed land parcel
WADNR_Region	smallint	the Washington DNR Region in which the SubPlot center point is located
WADNR_District	smallint	the Washington DNR District in which the SubPlot center point is located
WADNR_Unit	smallint	the Washington DNR Unit in which the SubPlot center point is located
USFS_onFAB	bit	whether or not the SubPlot center point is located within the USFS Forest Administrative Boundary
USFS_FAB_RegionForest	nvarchar(4)	the USFS Region and Forest Codes, if the SubPlot center point is located within the USFS Forest Administrative Boundary
USFS_onNDMPL	bit	whether or not the SubPlot center point is located on a USFS parcel according to the Washington DNR's Non-DNR Major Public Lands dataset
USFS_NDMPL_ForestName	nvarchar(60)	the USFS Forest Name, if the SubPlot center point is located on a USFS parcel according to the Washington DNR's Non-DNR Major Public Lands dataset

Field	Data Type	Description
USFS_onBoth	bit	USFS_onFAB and USFS_onNDMPL are both true
USFS_onEither	bit	one of USFS_onFAB or USFS_onNDMPL are true
USFS_onNeither	bit	neither USFS_onFAB or USFS_onNDMPL are true
eastWest	nvarchar(1)	w=the SubPlot centerpoint is west of the Cascade crest; e=the SubPlot centerpoint is east of the Cascade crest
studyAreaID	smallint	used for the Washington Forest Inventory project; the ID number of the study area in which the SubPlot centerpoint is located; NULL if the SubPlot centerpoint is outside of a study area
elevationDataSource	nvarchar(48)	the data source for the ground model at the SubPlot centerpoint's location
lidarGroundModel	bit	whether or not the SubPlot centerpoint location is on a lidar ground model

SubPlotMeasurement

The measurement date or dates for each SubPlot. SubPlots can be re-measured at different times.

Field	Data Type	Description
SubPlotMeasurementID	uniqueidentifier	unique, auto-generated ID for each SubPlotMeasurement
SubPlotID	uniqueidentifier	foreign key to join to the SubPlot table
MeasurementDate	date	date the field inventory was measured for the plot. May be NULL if measurement date is unknown
HasNoInventoryFlag	bit	1 (true) if no field inventory was provided for the plot; 0 (false) if a field inventory was provided for the plot
HasNoTreesFlag	bit	1 (true) if the plot has a field inventory, but no trees were present on the plot; 0 (false) if the plot has a field inventory, and trees were present on the plot

SubPlotBestDAPLIDARbyTime

The DAP or LIDAR dataset that was collected closest in time to the measurement date of each SubPlot; measured in years. When there is more than one acquisition the same number of years apart from the SubPlot acquisition year, the DAP or LIDAR that was collected before the SubPlot measurement is prioritized. Any discrepancies between the remotely sensed data and the field data are more likely to be detected if the field crew measures the SubPlot after the DAP or LIDAR was collected.

The table below is the time difference in years between when the SubPlots were measured and when the various DAP acquisitions occurred. Green squares are the closest DAP acquisitions in time (± 2 years), yellow squares are the second closest (± 2 years), red squares are the third closest (± 2 years). DAP acquisitions with time differences larger than ± 2 years are not valid for SubPlots.

For this project, 2017 DAP data was available statewide, and 2015 and 2019 DAP data was available in selected study areas. 2013 DAP data was not available, but may be added in the future.

Plot Year	DAP Year			
	2013	2015	2017	2019
2009	-4	-6	-8	-10
2013	0	-2	-4	-6
2014	1	-1	-3	-5
2015	2	0	-2	-4
2016	3	1	-1	-3
2017	4	2	0	-2
2018	5	3	1	-1
2019	6	4	2	0

Field	Data Type	Description
SubPlotMeasurementID	uniqueidentifier	foreign key to join to the SubPlotMeasurement table
MeasurementDate	date	date the field inventory was measured for the plot. If a plot has a measurement year, but no month or day, it is given the measurement date January 1.
MeasurementYear	smallint	year the field inventory was measured for the plot
dapYear1	smallint	year of the DAP acquisition closest in time to PlotMeasurementYear within ± 2 years. Tiebreaker is plot measured after DAP
dapYear1_tD	smallint	time difference between plot measurement and closest DAP acquisition, in years. Positive: plot measured after DAP, negative: plot measured before DAP
dapYear2	smallint	year of the DAP acquisition second closest in time to PlotMeasurementYear within ± 2 years. Tiebreaker is plot measured after DAP
dapYear2_tD	smallint	time difference between plot measurement and second closest DAP acquisition, in years. Positive: plot measured after DAP, negative: plot measured before DAP
dapYear3	smallint	year of the DAP acquisition third closest in time to PlotMeasurementYear within ± 2 years. Tiebreaker is plot measured after DAP
dapYear3_tD	smallint	time difference between plot measurement and third closest DAP acquisition, in years. Positive: plot measured after DAP, negative: plot measured before DAP
lidarYear	smallint	year of the LIDAR acquisition closest in time to PlotMeasurementYear. Tiebreaker: is plot measured after LIDAR
lidarYear_tD	smallint	time difference between plot measurement and closest LIDAR acquisition, in years. Positive: plot measured after LIDAR, negative: plot measured before LIDAR
lidarName	nvarchar(128)	name of the LIDAR acquisition closest in time to PlotMeasurementYear

Tree

Attributes for each measured large tree. Large trees must be above a diameter threshold, which is defined differently for different data collections, and are counted individually.

Attributes for each measured small tree. Small trees can be defined by maximum diameter and / or minimum height. Small trees are usually collected on a small plot, are usually live, often do not have crown ratio information, and can be clustered into groups by diameter class, height, and species.

Field	Data Type	Description
TreeID	uniqueidentifier	unique, auto-generated ID for each tree
SubPlotMeasurementID	uniqueidentifier	foreign key to join to the SubPlotMeasurement table
SourceTreeID	nvarchar(128)	tree id according to data provider
SourceTreeNumber	int	tree number according to data provider
Count	smallint	small trees can be grouped by height, diameter, and species. The number of trees this record represents
ErrorFlag	bit	field is true if an error was noticed during processing, otherwise false
ErrorDescription	nvarchar(256)	description of data error. Examples: diameter/plot size mismatch, live/dead error, clustered large trees
SpeciesID	uniqueidentifier	foreign key to join to the Species table
SourceSpeciesCode	nvarchar(32)	tree species code from data provider
Diameter	decimal(6,3)	tree diameter in inches
DiameterType	nvarchar(16)	measured', 'estimated', or 'calculated'
Height	decimal(6,3)	tree height in feet
HeightType	nvarchar(16)	measured', 'estimated', or 'calculated'. May have been calculated by UW after receiving the data and given the value 'calculated UW'
HeightToLiveCrown	decimal(6,3)	tree height to live crown in feet
HeightToLiveCrownType	nvarchar(16)	measured', 'estimated', or 'calculated'. May have been calculated by UW after receiving the data and given the value 'calculated UW'
CrownRatio	decimal(6,3)	percentage of tree height that is crown
CrownRatioType	nvarchar(16)	measured', 'estimated', or 'calculated'. May have been calculated by UW after receiving the data and given the value 'calculated UW'
LiveCrownLength	decimal(6,3)	tree live crown length in feet
LiveCrownLengthType	nvarchar(16)	measured', 'estimated', or 'calculated'. May have been calculated by UW after receiving the data and given the value 'calculated UW'
CrownDiameter	decimal(6,3)	tree crown diameter in feet
CrownDiameterType	nvarchar(16)	measured', 'estimated', or 'calculated'
Age	smallint	tree age in years

Field	Data Type	Description
AgeType	nvarchar(16)	measured', 'estimated', or 'calculated'
Live	bit	true or false; tree is live (true) or dead (false)
SnagDecayClass	smallint	values: 1 through 4 DNR, 1 through 5 USFS; 1 through 4 similar for both sources; 5 is additional
CrownClass	nvarchar(16)	values: Open-grown, Dominant, Co-dominant, Intermediate, Overtopped, Remnant, Leader above brush, Leader within brush, Leader overtopped, Suppressed, Understory
DistanceFt	decimal(6,3)	distance of tree from plot center point in feet
AzimuthDegTrueNorth	decimal(6,3)	azimuth in degrees from plot center point to tree; corrected for declination to true north
ExpansionFactorToAcre	decimal(8,4)	multiplier to convert this tree's values to per acre values; based on sub-plot size
ExpansionFactorToLargePlot	decimal(8,4)	multiplier to convert this tree's values to equivalent values on the full large plot; based on ratio of small/medium plot and large plot sizes. For trees on the large plot, this value is 1.

TreeNVELVolume

The total cubic foot volume of each tree, calculated using the National Volume Estimator Library (NVEL).

Field	Data Type	Description
TreeID	uniqueidentifier	foreign key to join to the Tree table
totalCubicVolume	decimal(16,8)	the tree's the total volume, in cubic feet. Calculated by the National Volume Estimator Library using the calcTotCubic function. NVEL parameters are defined in the species table

TreeFVSVolume

Various individual tree volumes, calculated using FVS. See the FVS Variant Overview documentation for more details about the FVS volume calculations.

Field	Data Type	Description
TreeID	uniqueidentifier	foreign key to join to the Tree table
totalCubicVolume	decimal(16,8)	the tree's total stem cubic feet, calculated using FVS
merchCubicVolume	decimal(16,8)	the tree's merchantable stem cubic feet, calculated using FVS
boardFootVolume	decimal(16,8)	the tree's merchantable stem board feet, calculated using FVS

Species

Species information for all records in the Tree table.

Field	Data Type	Description
SpeciesID	uniqueidentifier	unique, auto-generated ID for each species
FIACode	int	3-digit FIA species code
NRCSPPlantsCode	nvarchar(16)	NRCS Plants Code
CommonName	nvarchar(128)	species common name
ScientificName	nvarchar(128)	species scientific name
SpeciesGroup	nvarchar(32)	general group to which species belongs; primarily used to separate hardwoods and softwoods
NVEL_VolumeEquationNumber	nvarchar(32)	species volume equation number; used for National Volume Estimator Library volume calculations
NVEL_VEN_Region	smallint	species volume equation number USFS region; used for National Volume Estimator Library volume calculations
NVEL_VEN_Forest	smallint	species volume equation number USFS forest; used for National Volume Estimator Library volume calculations
NVEL_VEN_Comment	nvarchar(128)	comments about selected volume equation
Jenkins_TAB_SpeciesGroup	nvarchar(64)	Jenkins total aboveground biomass species group
Jenkins_TAB_B0	decimal(8,4)	Jenkins total aboveground biomass biomass equation parameter 0
Jenkins_TAB_B1	decimal(8,4)	Jenkins total aboveground biomass biomass equation parameter 1
Jenkins_TAB_MaxDiameterIn	decimal(8,4)	maximum diameter for Jenkins total above ground biomass equation species group

PlotElevationSummary

Plot attributes based on the digital elevation model.

Elevation and Slope and Aspect

Elevation, Slope, and Aspect values for each plot are calculated using the 15ft resolution statewide digital elevation model. Each plot center was buffered 15m, producing a 30m diameter circle for each plot. A 30m diameter circle is approximately 1/5th acre and contains up to 32 15ft dem pixels.

Mean elevation and slope were calculated using Zonal Statistics in ArcGIS, with the 30m plot circles as the zones.

Mean aspect was calculated in 3D Analyst in ArcGIS and then averaged for each 30m plot circle as:

$$\text{math.fmod}(360 + (\text{math.degrees}(\text{math.atan2}(!\text{SumSin!}, !\text{SumCos!}))) , 360)$$

where:

- SumSin = Zonal Sum(sin(radians(aspect)))
- SumCos = Zonal Sum(cos(radians(aspect)))

The mean aspect was cosine transformed using the method described in Beers 1966 as:

$A' = \cos(\text{radians}(45-A)) + 1$, where A is the plot's mean aspect in degrees and A' is the cosine transformed mean aspect.

Topographic Position Index

The height difference of each digital elevation model pixel to the mean elevation of its neighborhood.

Neighborhoods are circular and of various sizes.

Potential Relative Radiation

An estimate of the total annual direct solar insolation for each plot.

The method was based on Pierce 2005 and Klein 1977. Direct solar insolation for each pixel on a 30m DEM was calculated for a 24 hour period, for the recommended average day of each month, using Saga-GIS. The Saga-GIS tool sums the solar insolation for each day to a daily total. The daily totals for all 12 months were summed, to represent relative annual insolation. Each plot center was buffered by 45 meters to produce a 90m diameter circle, and the average of the PRR pixels in each circle was calculated as the PRR for each plot.

Field	Data Type	Description
PlotID	uniqueidentifier	foreign key to join to the Plot table
ElevationMean	decimal(38,8)	mean plot elevation in feet
ElevationStd	decimal(38,8)	standard deviation of the plot elevations in feet
ElevationMin	decimal(38,8)	minimum plot elevation in feet
ElevationMax	decimal(38,8)	maximum plot elevation in feet
ElevationRange	decimal(38,8)	range of the plot elevations (maximum - minimum) in feet
SlopeDegreesMean	decimal(38,8)	mean plot slope in degrees
SlopeDegreesStd	decimal(38,8)	standard deviation of the plot slopes in degrees
SlopeDegreesMin	decimal(38,8)	minimum plot slope in degrees
SlopeDegreesMax	decimal(38,8)	maximum plot slope in degrees
SlopeDegreesRange	decimal(38,8)	range of the plot slopes (maximum-minimum) in degrees
AspectMean	decimal(38,8)	mean plot aspect in degrees
AspectMeanCosTransform	decimal(38,8)	mean plot aspect transformed using Beers method: $\text{COS}(\text{RADIANS}(45-\text{AspectMean}))+1$. NE=2, SW=0, NW and SE=1
TPI225	decimal(38,8)	topographic position index calculated using a 15 cell (225ft ~ 70m) circular neighborhood
TPI465	decimal(38,8)	topographic position index calculated using a 31 cell (465ft ~ 140m) circular neighborhood
TPI1485	decimal(38,8)	topographic position index calculated using a 99 cell (1485ft ~ 450m) circular neighborhood
TPI3285	decimal(38,8)	topographic position index calculated using a 219 cell (3285ft ~ 1000m) circular neighborhood
PRR	decimal(38,8)	potential relative radiation for each plot

PlotPRISM1981to2010

Climate data from the PRISM Climate Group 1981 to 2010 30 year normal dataset, 800m, version M2. Values are calculated for each plot using the Spatial Analyst tool Extract Multi Values to Points tool in ArcGIS. Values are for whichever cell in which the plot center point is located.

Sources:

<https://prism.oregonstate.edu/normals/>

https://prism.oregonstate.edu/documents/PRISM_datasets.pdf

There are several calculated metrics derived from the PRISM metrics in this table as well. They are identified by having fully capitalized field names.

Field	Data Type	Description
PlotID	uniqueidentifier	foreign key to join to the Plot table
ppt01	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Jan
ppt02	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Feb
ppt03	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Mar
ppt04	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Apr
ppt05	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for May
ppt06	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Jun
ppt07	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Jul
ppt08	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Aug
ppt09	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Sep
ppt10	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Oct
ppt11	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Nov
ppt12	decimal(8,4)	average total monthly precipitation (rain+melted snow) in mm for Dec
pptAnnual	decimal(8,4)	average total annual precipitation (rain+melted snow) in mm
tmin01	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Jan
tmin02	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Feb
tmin03	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Mar

Field	Data Type	Description
tmin04	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Apr
tmin05	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for May
tmin06	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Jun
tmin07	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Jul
tmin08	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Aug
tmin09	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Sep
tmin10	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Oct
tmin11	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Nov
tmin12	decimal(8,4)	daily minimum temperature (averaged over all days in the month) in Celcius for Dec
tminAnnual	decimal(8,4)	annual minimum temperature (averaged over all days in the year) in Celcius
tmax01	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Jan
tmax02	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Feb
tmax03	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Mar
tmax04	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Apr
tmax05	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for May
tmax06	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Jun
tmax07	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Jul
tmax08	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Aug
tmax09	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Sep
tmax10	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Oct
tmax11	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Nov
tmax12	decimal(8,4)	daily maximum temperature (averaged over all days in the month) in Celcius for Dec
tmaxAnnual	decimal(8,4)	annual maximum temperature (averaged over all days in the year) in Celcius

Field	Data Type	Description
tmean01	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Jan
tmean02	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Feb
tmean03	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Mar
tmean04	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Apr
tmean05	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for May
tmean06	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Jun
tmean07	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Jul
tmean08	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Aug
tmean09	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Sep
tmean10	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Oct
tmean11	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Nov
tmean12	decimal(8,4)	daily mean temperature, calculated as $(t_{max}+t_{min})/2$, in Celcius for Dec
tmeanAnnual	decimal(8,4)	annual mean temperature (averaged over all days in the year) in Celcius
tdmean01	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Jan
tdmean02	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Feb
tdmean03	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Mar
tdmean04	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Apr
tdmean05	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for May
tdmean06	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Jun
tdmean07	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Jul
tdmean08	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Aug
tdmean09	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Sep
tdmean10	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Oct

Field	Data Type	Description
tdmean11	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Nov
tdmean12	decimal(8,4)	daily mean dew point temperature (averaged over all days in the month) in Celcius for Dec
tdmeanAnnual	decimal(8,4)	annual mean dew point temperature (averaged over all days in the year) in Celcius
vpdmin01	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Jan
vpdmin02	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Feb
vpdmin03	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Mar
vpdmin04	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Apr
vpdmin05	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for May
vpdmin06	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Jun
vpdmin07	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Jul
vpdmin08	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Aug
vpdmin09	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Sep
vpdmin10	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Oct
vpdmin11	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Nov
vpdmin12	decimal(8,4)	daily minimum vapor pressure deficit (averaged over all days in the month) in hPA for Dec
vpdminAnnual	decimal(8,4)	annual minimum vapor pressure deficit (averaged over all days in the year) in hPA
vpdmax01	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Jan
vpdmax02	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Feb
vpdmax03	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Mar
vpdmax04	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Apr
vpdmax05	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for May
vpdmax06	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Jun
vpdmax07	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Jul

Field	Data Type	Description
vpdmax08	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Aug
vpdmax09	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Sep
vpdmax10	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Oct
vpdmax11	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Nov
vpdmax12	decimal(8,4)	daily maximum vapor pressure deficit (averaged over all days in the month) in hPA for Dec
vpdmaxAnnual	decimal(8,4)	annual maximum vapor pressure deficit (averaged over all days in the year) in hPA
GSAVGMAXT	decimal(8,4)	calculated metric; average of the monthly maximum temperatures for the growing season, May through September, in Celcius; $(tmax05 + tmax06 + tmax07 + tmax08 + tmax09) / 5$
WINAVGMINT	decimal(8,4)	calculated metric; average of the monthly minimum temperatures for the winter, December through February, in Celcius; $(tmin12 + tmin01 + tmin02) / 3$
DIFTMP	decimal(8,4)	calculated metric; the difference between the August maximum temperature and the December minimum temperature, in Celcius; $tmax08 - tmin12$
CONTPRE	decimal(8,4)	calculated metric; the percentage of annual precipitation falling in June-August; $(ppt06 + ppt07 + ppt08) / pptAnnual$
GSPRE	decimal(8,4)	calculated metric; total precepitation falling during the growing season, May through September, in millimeters; $ppt05 + ppt06 + ppt07 + ppt08 + ppt09$
NGSPRE	decimal(8,4)	calculated metric; total precepitation falling outside of the growing season, October through April, in millimeters; $pptAnnual - GSPRE$
SMRTMP	decimal(8,4)	calculated metric; average of the monthly mean temperatures for the growing season, May through September, in Celcius; $(tmean05 + tmean06 + tmean07 + tmean08 + tmean09) / 5$
SMRPRE_LN	decimal(8,4)	calculated metric; average of the natural logarithm of the monthly precipitation amounts for the growing season, May through September; $(Ln(ppt05) + Ln(ppt06) + Ln(ppt07) + Ln(ppt08) + Ln(ppt09)) / 5$
SMRTP_LN	decimal(8,4)	calculated metric; growing season moisture stress; $SMRTMP / SMRPRE_LN$

PlotClimateNA1981to2010

Climate data from the University of British Columbia Centre for Forest Conservation Genetics. 1981 to 2010 climate normal values were calculated for each plot using the standalone MS Windows application Version 7.00 and the plot center point coordinates.

Sources:

<http://climatena.ca/>

<https://cfcg.forestry.ubc.ca/projects/climate-data/climatebcwna/>

https://s3-us-west-2.amazonaws.com/www.cacpd.org/documents/ClimateNAv7_manual.pdf

Field	Data Type	Description
PlotID	uniqueidentifier	foreign key to join to the Plot table
MAT	decimal(8,4)	mean annual temperature (°C); directly calculated annual variable
MWMT	decimal(8,4)	mean warmest month temperature (°C); directly calculated annual variable
MCMT	decimal(8,4)	mean coldest month temperature (°C); directly calculated annual variable
TD	decimal(8,4)	temperature difference between MWMT and MCMT, or continentality (°C); directly calculated annual variable
MAP	smallint	mean annual precipitation (mm); directly calculated annual variable
MSP	smallint	May to September precipitation (mm); directly calculated annual variable
AHM	decimal(8,4)	annual heat-moisture index $(MAT+10)/(MAP/1000)$; directly calculated annual variable
SHM	decimal(8,4)	summer heat-moisture index $((MWMT)/(MSP/1000))$; directly calculated annual variable
DD_0	smallint	(DD<0) degree-days below 0°C, chilling degree-days; derived annual variable
DD5	smallint	(DD>5) degree-days above 5°C, growing degree-days; derived annual variable
DD_18	smallint	(DD<18) degree-days below 18°C, heating degree-days; derived annual variable
DD18	smallint	(DD>18) degree-days above 18°C, cooling degree-days; derived annual variable
NFFD	smallint	the number of frost-free days; derived annual variable
FFP	smallint	frost-free period; derived annual variable
bFFP	smallint	the day of the year on which FFP begins; derived annual variable
eFFP	smallint	the day of the year on which FFP ends; derived annual variable
PAS	smallint	precipitation as snow (mm). For individual years, it covers the period between August in the previous year and July in the current year; derived annual variable
EMT	decimal(8,4)	extreme minimum temperature over 30 years; derived annual variable
EXT	decimal(8,4)	extreme maximum temperature over 30 years; derived annual variable
Eref	smallint	Hargreaves reference evaporation (mm); derived annual variable
CMD	smallint	Hargreaves climatic moisture deficit (mm); derived annual variable
MAR	decimal(8,4)	mean annual solar radiation ($MJ\ m^{-2}\ d^{-1}$); derived annual variable
RH	smallint	mean annual relative humidity (%); derived annual variable
CMI	decimal(8,4)	Hogg's climate moisture index (mm); derived annual variable

Field	Data Type	Description
DD1040	smallint	(10<DD<40) degree-days above 10°C and below 40°C; derived annual variable
Tave_wt	decimal(8,4)	winter mean temperature (°C); directly calculated seasonal variable
Tave_sp	decimal(8,4)	spring mean temperature (°C); directly calculated seasonal variable
Tave_sm	decimal(8,4)	summer mean temperature (°C); directly calculated seasonal variable
Tave_at	decimal(8,4)	autumn mean temperature (°C); directly calculated seasonal variable
Tmax_wt	decimal(8,4)	winter mean maximum temperature (°C); directly calculated seasonal variable
Tmax_sp	decimal(8,4)	spring mean maximum temperature (°C); directly calculated seasonal variable
Tmax_sm	decimal(8,4)	summer mean maximum temperature (°C); directly calculated seasonal variable
Tmax_at	decimal(8,4)	autumn mean maximum temperature (°C); directly calculated seasonal variable
Tmin_wt	decimal(8,4)	winter mean minimum temperature (°C); directly calculated seasonal variable
Tmin_sp	decimal(8,4)	spring mean minimum temperature (°C); directly calculated seasonal variable
Tmin_sm	decimal(8,4)	summer mean minimum temperature (°C); directly calculated seasonal variable
Tmin_at	decimal(8,4)	autumn mean minimum temperature (°C); directly calculated seasonal variable
PPT_wt	smallint	winter precipitation (mm); directly calculated seasonal variable
PPT_sp	smallint	spring precipitation (mm); directly calculated seasonal variable
PPT_sm	smallint	summer precipitation (mm); directly calculated seasonal variable
PPT_at	smallint	autumn precipitation (mm); directly calculated seasonal variable
Rad_wt	smallint	winter solar radiation (MJ m ⁻² d ⁻¹); directly calculated seasonal variable
Rad_sp	smallint	spring solar radiation (MJ m ⁻² d ⁻¹); directly calculated seasonal variable
Rad_sm	smallint	summer solar radiation (MJ m ⁻² d ⁻¹); directly calculated seasonal variable
Rad_at	smallint	autumn solar radiation (MJ m ⁻² d ⁻¹); directly calculated seasonal variable
DD_0_wt	smallint	winter degree-days below 0°C; derived seasonal variable
DD_0_sp	smallint	spring degree-days below 0°C; derived seasonal variable
DD_0_sm	smallint	summer degree-days below 0°C; derived seasonal variable
DD_0_at	smallint	autumn degree-days below 0°C; derived seasonal variable
DD5_wt	smallint	winter degree-days above 5°C; derived seasonal variable
DD5_sp	smallint	spring degree-days above 5°C; derived seasonal variable
DD5_sm	smallint	summer degree-days above 5°C; derived seasonal variable
DD5_at	smallint	autumn degree-days above 5°C; derived seasonal variable
DD_18_wt	smallint	winter degree-days below 18°C; derived seasonal variable

Field	Data Type	Description
DD_18_sp	smallint	spring degree-days below 18°C; derived seasonal variable
DD_18_sm	smallint	summer degree-days below 18°C; derived seasonal variable
DD_18_at	smallint	autumn degree-days below 18°C; derived seasonal variable
DD18_wt	smallint	winter degree-days above 18°C; derived seasonal variable
DD18_sp	smallint	spring degree-days above 18°C; derived seasonal variable
DD18_sm	smallint	summer degree-days above 18°C; derived seasonal variable
DD18_at	smallint	autumn degree-days above 18°C; derived seasonal variable
NFFD_wt	smallint	winter number of frost-free days; derived seasonal variable
NFFD_sp	smallint	spring number of frost-free days; derived seasonal variable
NFFD_sm	smallint	summer number of frost-free days; derived seasonal variable
NFFD_at	smallint	autumn number of frost-free days; derived seasonal variable
PAS_wt	smallint	winter precipitation as snow (mm); derived seasonal variable
PAS_sp	smallint	spring precipitation as snow (mm); derived seasonal variable
PAS_sm	smallint	summer precipitation as snow (mm); derived seasonal variable
PAS_at	smallint	autumn precipitation as snow (mm); derived seasonal variable
Eref_wt	smallint	winter Hargreaves reference evaporation (mm); derived seasonal variable
Eref_sp	smallint	spring Hargreaves reference evaporation (mm); derived seasonal variable
Eref_sm	smallint	summer Hargreaves reference evaporation (mm); derived seasonal variable
Eref_at	smallint	autumn Hargreaves reference evaporation (mm); derived seasonal variable
CMD_wt	smallint	winter Hargreaves climatic moisture deficit (mm); derived seasonal variable
CMD_sp	smallint	spring Hargreaves climatic moisture deficit (mm); derived seasonal variable
CMD_sm	smallint	summer Hargreaves climatic moisture deficit (mm); derived seasonal variable
CMD_at	smallint	autumn Hargreaves climatic moisture deficit (mm); derived seasonal variable
RH_wt	smallint	winter relative humidity (%); derived seasonal variable
RH_sp	smallint	spring relative humidity (%); derived seasonal variable
RH_sm	smallint	summer relative humidity (%); derived seasonal variable
RH_at	smallint	autumn relative humidity (%); derived seasonal variable
CMI_wt	decimal(8,4)	winter Hogg's climate moisture index (mm); derived seasonal variable
CMI_sp	decimal(8,4)	spring Hogg's climate moisture index (mm); derived seasonal variable
CMI_sm	decimal(8,4)	summer Hogg's climate moisture index (mm); derived seasonal variable
CMI_at	decimal(8,4)	autumn Hogg's climate moisture index (mm); derived seasonal variable

Field	Data Type	Description
Tave01	decimal(8,4)	January mean temperatures (°C); primary monthly variable
Tave02	decimal(8,4)	February mean temperatures (°C); primary monthly variable
Tave03	decimal(8,4)	March mean temperatures (°C); primary monthly variable
Tave04	decimal(8,4)	April mean temperatures (°C); primary monthly variable
Tave05	decimal(8,4)	May mean temperatures (°C); primary monthly variable
Tave06	decimal(8,4)	June mean temperatures (°C); primary monthly variable
Tave07	decimal(8,4)	July mean temperatures (°C); primary monthly variable
Tave08	decimal(8,4)	August mean temperatures (°C); primary monthly variable
Tave09	decimal(8,4)	September mean temperatures (°C); primary monthly variable
Tave10	decimal(8,4)	October mean temperatures (°C); primary monthly variable
Tave11	decimal(8,4)	November mean temperatures (°C); primary monthly variable
Tave12	decimal(8,4)	December mean temperatures (°C); primary monthly variable
Tmax01	decimal(8,4)	January maximum mean temperatures (°C); primary monthly variable
Tmax02	decimal(8,4)	February maximum mean temperatures (°C); primary monthly variable
Tmax03	decimal(8,4)	March maximum mean temperatures (°C); primary monthly variable
Tmax04	decimal(8,4)	April maximum mean temperatures (°C); primary monthly variable
Tmax05	decimal(8,4)	May maximum mean temperatures (°C); primary monthly variable
Tmax06	decimal(8,4)	June maximum mean temperatures (°C); primary monthly variable
Tmax07	decimal(8,4)	July maximum mean temperatures (°C); primary monthly variable
Tmax08	decimal(8,4)	August maximum mean temperatures (°C); primary monthly variable
Tmax09	decimal(8,4)	September maximum mean temperatures (°C); primary monthly variable
Tmax10	decimal(8,4)	October maximum mean temperatures (°C); primary monthly variable
Tmax11	decimal(8,4)	November maximum mean temperatures (°C); primary monthly variable
Tmax12	decimal(8,4)	December maximum mean temperatures (°C); primary monthly variable
Tmin01	decimal(8,4)	January minimum mean temperatures (°C); primary monthly variable
Tmin02	decimal(8,4)	February minimum mean temperatures (°C); primary monthly variable
Tmin03	decimal(8,4)	March minimum mean temperatures (°C); primary monthly variable
Tmin04	decimal(8,4)	April minimum mean temperatures (°C); primary monthly variable
Tmin05	decimal(8,4)	May minimum mean temperatures (°C); primary monthly variable
Tmin06	decimal(8,4)	June minimum mean temperatures (°C); primary monthly variable
Tmin07	decimal(8,4)	July minimum mean temperatures (°C); primary monthly variable
Tmin08	decimal(8,4)	August minimum mean temperatures (°C); primary monthly variable
Tmin09	decimal(8,4)	September minimum mean temperatures (°C); primary monthly variable

Field	Data Type	Description
Tmin10	decimal(8,4)	October minimum mean temperatures (°C); primary monthly variable
Tmin11	decimal(8,4)	November minimum mean temperatures (°C); primary monthly variable
Tmin12	decimal(8,4)	December minimum mean temperatures (°C); primary monthly variable
PPT01	smallint	January precipitation (mm); primary monthly variable
PPT02	smallint	February precipitation (mm); primary monthly variable
PPT03	smallint	March precipitation (mm); primary monthly variable
PPT04	smallint	April precipitation (mm); primary monthly variable
PPT05	smallint	May precipitation (mm); primary monthly variable
PPT06	smallint	June precipitation (mm); primary monthly variable
PPT07	smallint	July precipitation (mm); primary monthly variable
PPT08	smallint	August precipitation (mm); primary monthly variable
PPT09	smallint	September precipitation (mm); primary monthly variable
PPT10	smallint	October precipitation (mm); primary monthly variable
PPT11	smallint	November precipitation (mm); primary monthly variable
PPT12	smallint	December precipitation (mm); primary monthly variable
Rad01	decimal(8,4)	January solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad02	decimal(8,4)	February solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad03	decimal(8,4)	March solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad04	decimal(8,4)	April solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad05	decimal(8,4)	May solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad06	decimal(8,4)	June solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad07	decimal(8,4)	July solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad08	decimal(8,4)	August solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad09	decimal(8,4)	September solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad10	decimal(8,4)	October solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad11	decimal(8,4)	November solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
Rad12	decimal(8,4)	December solar radiation (MJ m ⁻² d ⁻¹); primary monthly variable
DD_0_01	smallint	January degree-days below 0°C; derived monthly variable
DD_0_02	smallint	February degree-days below 0°C; derived monthly variable
DD_0_03	smallint	March degree-days below 0°C; derived monthly variable
DD_0_04	smallint	April degree-days below 0°C; derived monthly variable
DD_0_05	smallint	May degree-days below 0°C; derived monthly variable
DD_0_06	smallint	June degree-days below 0°C; derived monthly variable
DD_0_07	smallint	July degree-days below 0°C; derived monthly variable
DD_0_08	smallint	August degree-days below 0°C; derived monthly variable
DD_0_09	smallint	September degree-days below 0°C; derived monthly variable
DD_0_10	smallint	October degree-days below 0°C; derived monthly variable
DD_0_11	smallint	November degree-days below 0°C; derived monthly variable

Field	Data Type	Description
DD_0_12	smallint	December degree-days below 0°C; derived monthly variable
DD5_01	smallint	January degree-days above 5°C; derived monthly variable
DD5_02	smallint	February degree-days above 5°C; derived monthly variable
DD5_03	smallint	March degree-days above 5°C; derived monthly variable
DD5_04	smallint	April degree-days above 5°C; derived monthly variable
DD5_05	smallint	May degree-days above 5°C; derived monthly variable
DD5_06	smallint	June degree-days above 5°C; derived monthly variable
DD5_07	smallint	July degree-days above 5°C; derived monthly variable
DD5_08	smallint	August degree-days above 5°C; derived monthly variable
DD5_09	smallint	September degree-days above 5°C; derived monthly variable
DD5_10	smallint	October degree-days above 5°C; derived monthly variable
DD5_11	smallint	November degree-days above 5°C; derived monthly variable
DD5_12	smallint	December degree-days above 5°C; derived monthly variable
DD_18_01	smallint	January degree-days below 18°C; derived monthly variable
DD_18_02	smallint	February degree-days below 18°C; derived monthly variable
DD_18_03	smallint	March degree-days below 18°C; derived monthly variable
DD_18_04	smallint	April degree-days below 18°C; derived monthly variable
DD_18_05	smallint	May degree-days below 18°C; derived monthly variable
DD_18_06	smallint	June degree-days below 18°C; derived monthly variable
DD_18_07	smallint	July degree-days below 18°C; derived monthly variable
DD_18_08	smallint	August degree-days below 18°C; derived monthly variable
DD_18_09	smallint	September degree-days below 18°C; derived monthly variable
DD_18_10	smallint	October degree-days below 18°C; derived monthly variable
DD_18_11	smallint	November degree-days below 18°C; derived monthly variable
DD_18_12	smallint	December degree-days below 18°C; derived monthly variable
DD18_01	smallint	January degree-days above 18°C; derived monthly variable
DD18_02	smallint	February degree-days above 18°C; derived monthly variable
DD18_03	smallint	March degree-days above 18°C; derived monthly variable
DD18_04	smallint	April degree-days above 18°C; derived monthly variable
DD18_05	smallint	May degree-days above 18°C; derived monthly variable
DD18_06	smallint	June degree-days above 18°C; derived monthly variable
DD18_07	smallint	July degree-days above 18°C; derived monthly variable
DD18_08	smallint	August degree-days above 18°C; derived monthly variable
DD18_09	smallint	September degree-days above 18°C; derived monthly variable
DD18_10	smallint	October degree-days above 18°C; derived monthly variable
DD18_11	smallint	November degree-days above 18°C; derived monthly variable
DD18_12	smallint	December degree-days above 18°C; derived monthly variable
NFFD01	smallint	January number of frost-free days; derived monthly variable
NFFD02	smallint	February number of frost-free days; derived monthly variable
NFFD03	smallint	March number of frost-free days; derived monthly variable

Field	Data Type	Description
NFFD04	smallint	April number of frost-free days; derived monthly variable
NFFD05	smallint	May number of frost-free days; derived monthly variable
NFFD06	smallint	June number of frost-free days; derived monthly variable
NFFD07	smallint	July number of frost-free days; derived monthly variable
NFFD08	smallint	August number of frost-free days; derived monthly variable
NFFD09	smallint	September number of frost-free days; derived monthly variable
NFFD10	smallint	October number of frost-free days; derived monthly variable
NFFD11	smallint	November number of frost-free days; derived monthly variable
NFFD12	smallint	December number of frost-free days; derived monthly variable
PAS01	smallint	January precipitation as snow (mm); derived monthly variable
PAS02	smallint	February precipitation as snow (mm); derived monthly variable
PAS03	smallint	March precipitation as snow (mm); derived monthly variable
PAS04	smallint	April precipitation as snow (mm); derived monthly variable
PAS05	smallint	May precipitation as snow (mm); derived monthly variable
PAS06	smallint	June precipitation as snow (mm); derived monthly variable
PAS07	smallint	July precipitation as snow (mm); derived monthly variable
PAS08	smallint	August precipitation as snow (mm); derived monthly variable
PAS09	smallint	September precipitation as snow (mm); derived monthly variable
PAS10	smallint	October precipitation as snow (mm); derived monthly variable
PAS11	smallint	November precipitation as snow (mm); derived monthly variable
PAS12	smallint	December precipitation as snow (mm); derived monthly variable
Eref01	smallint	January Hargreaves reference evaporation (mm); derived monthly variable
Eref02	smallint	February Hargreaves reference evaporation (mm); derived monthly variable
Eref03	smallint	March Hargreaves reference evaporation (mm); derived monthly variable
Eref04	smallint	April Hargreaves reference evaporation (mm); derived monthly variable
Eref05	smallint	May Hargreaves reference evaporation (mm); derived monthly variable
Eref06	smallint	June Hargreaves reference evaporation (mm); derived monthly variable
Eref07	smallint	July Hargreaves reference evaporation (mm); derived monthly variable
Eref08	smallint	August Hargreaves reference evaporation (mm); derived monthly variable
Eref09	smallint	September Hargreaves reference evaporation (mm); derived monthly variable
Eref10	smallint	October Hargreaves reference evaporation (mm); derived monthly variable
Eref11	smallint	November Hargreaves reference evaporation (mm); derived monthly variable

Field	Data Type	Description
Eref12	smallint	December Hargreaves reference evaporation (mm); derived monthly variable
CMD01	smallint	January Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD02	smallint	February Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD03	smallint	March Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD04	smallint	April Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD05	smallint	May Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD06	smallint	June Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD07	smallint	July Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD08	smallint	August Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD09	smallint	September Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD10	smallint	October Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD11	smallint	November Hargreaves climatic moisture deficit (mm); derived monthly variable
CMD12	smallint	December Hargreaves climatic moisture deficit (mm); derived monthly variable
RH01	smallint	January relative humidity (%); derived monthly variable
RH02	smallint	February relative humidity (%); derived monthly variable
RH03	smallint	March relative humidity (%); derived monthly variable
RH04	smallint	April relative humidity (%); derived monthly variable
RH05	smallint	May relative humidity (%); derived monthly variable
RH06	smallint	June relative humidity (%); derived monthly variable
RH07	smallint	July relative humidity (%); derived monthly variable
RH08	smallint	August relative humidity (%); derived monthly variable
RH09	smallint	September relative humidity (%); derived monthly variable
RH10	smallint	October relative humidity (%); derived monthly variable
RH11	smallint	November relative humidity (%); derived monthly variable
RH12	smallint	December relative humidity (%); derived monthly variable
CMI01	decimal(8,4)	January Hogg's climate moisture index (mm); derived monthly variable
CMI02	decimal(8,4)	February Hogg's climate moisture index (mm); derived monthly variable
CMI03	decimal(8,4)	March Hogg's climate moisture index (mm); derived monthly variable

Field	Data Type	Description
CMI04	decimal(8,4)	April Hogg's climate moisture index (mm); derived monthly variable
CMI05	decimal(8,4)	May Hogg's climate moisture index (mm); derived monthly variable
CMI06	decimal(8,4)	June Hogg's climate moisture index (mm); derived monthly variable
CMI07	decimal(8,4)	July Hogg's climate moisture index (mm); derived monthly variable
CMI08	decimal(8,4)	August Hogg's climate moisture index (mm); derived monthly variable
CMI09	decimal(8,4)	September Hogg's climate moisture index (mm); derived monthly variable
CMI10	decimal(8,4)	October Hogg's climate moisture index (mm); derived monthly variable
CMI11	decimal(8,4)	November Hogg's climate moisture index (mm); derived monthly variable
CMI12	decimal(8,4)	December Hogg's climate moisture index (mm); derived monthly variable

PlotSoils

Soil data for each plot calculated using the NRCS Soil Data Development Toolbox for ArcGIS and the gNATSGO database for Washington State. Both are available from

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/geo/?cid=nrcseprd1464625>

Field	Data Type	Description
PlotID	uniqueidentifier	foreign key to join to the Plot table
MapUnitKey	integer	soil map unit key
MapUnitName	nvarchar(256)	soil map unit name
AvailableWaterCapacity_0to5cm_DCP	decimal(8,2)	soil physical properties; 0 to 5 cm depth; dominant component
AvailableWaterCapacity_5to15cm_DCP	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; dominant component
AvailableWaterCapacity_15to30cm_DCP	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; dominant component
AvailableWaterCapacity_30to60cm_DCP	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; dominant component
AvailableWaterCapacity_60to100cm_DCP	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; dominant component
AvailableWaterCapacity_100to200cm_DCP	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; dominant component

Field	Data Type	Description
AvailableWaterStorage_0to5cm_WTA	decimal(8,2)	soil physical properties; 0 to 5 cm depth; weighted average
AvailableWaterStorage_5to15cm_WTA	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; weighted average
AvailableWaterStorage_15to30cm_WTA	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; weighted average
AvailableWaterStorage_30to60cm_WTA	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; weighted average
AvailableWaterStorage_60to100cm_WTA	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; weighted average
AvailableWaterStorage_100to200cm_WTA	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; weighted average
BulkDensity_OneThirdBar_0to5cm_DCP	decimal(8,2)	soil physical properties; 0 to 5 cm depth; dominant component
BulkDensity_OneThirdBar_5to15cm_DCP	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; dominant component
BulkDensity_OneThirdBar_15to30cm_DCP	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; dominant component
BulkDensity_OneThirdBar_30to60cm_DCP	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; dominant component
BulkDensity_OneThirdBar_60to100cm_DCP	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; dominant component
BulkDensity_OneThirdBar_100to200cm_DCP	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; dominant component
DepthToAnySoilRestrictiveLayer_DCP	smallint	soil qualities and features; dominant component
DepthtoWaterTable_JanuarytoDecember_DCP	smallint	water features; dominant component
DrainageClass_DCD	nvarchar(32)	soil qualities and features; dominant condition
ElectricalConductivity_0to5cm_DCP	decimal(8,2)	soil chemical properties; 0 to 5 cm depth; dominant component
ElectricalConductivity_5to15cm_DCP	decimal(8,2)	soil chemical properties; 5 cm to 15 cm depth; dominant component

Field	Data Type	Description
ElectricalConductivity_15to30cm_DCP	decimal(8,2)	soil chemical properties; 15 cm to 30 cm depth; dominant component
ElectricalConductivity_30to60cm_DCP	decimal(8,2)	soil chemical properties; 30 cm to 60 cm depth; dominant component
ElectricalConductivity_60to100cm_DCP	decimal(8,2)	soil chemical properties; 60 cm to 100 cm depth; dominant component
ElectricalConductivity_100to200cm_DCP	decimal(8,2)	soil chemical properties; 100 cm to 200 cm depth; dominant component
FrostAction_DCD	nvarchar(32)	soil qualities and features; dominant condition
FrostFreeDays_DCP	smallint	soil qualities and features; dominant component
HydrologicSoilGroup_DCD	nvarchar(8)	soil qualities and features; dominant condition
NitrateLeachingPotentialNonirrigated_DCD	nvarchar(32)	land management; dominant condition
NonirrigatedCapabilityClass_DCD	smallint	land classification; dominant condition
NonirrigatedCapabilitySubclass_DCD	nvarchar(8)	land classification; dominant condition
OrganicMatter_0to5cm_DCP	decimal(8,2)	soil physical properties; 0 to 5 cm depth; dominant component
OrganicMatter_5to15cm_DCP	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; dominant component
OrganicMatter_15to30cm_DCP	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; dominant component
OrganicMatter_30to60cm_DCP	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; dominant component
OrganicMatter_60to100cm_DCP	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; dominant component
OrganicMatter_100to200cm_DCP	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; dominant component
ParentMaterialName_DCD	nvarchar(256)	soil qualities and features; dominant condition

Field	Data Type	Description
PercentClay_0to5cm_DCP	decimal(8,2)	soil physical properties; 0 to 5 cm depth; dominant component
PercentClay_5to15cm_DCP	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; dominant component
PercentClay_15to30cm_DCP	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; dominant component
PercentClay_30to60cm_DCP	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; dominant component
PercentClay_60to100cm_DCP	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; dominant component
PercentClay_100to200cm_DCP	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; dominant component
PercentSand_0to5cm_DCP	decimal(8,2)	soil physical properties; 0 to 5 cm depth; dominant component
PercentSand_5to15cm_DCP	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; dominant component
PercentSand_15to30cm_DCP	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; dominant component
PercentSand_30to60cm_DCP	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; dominant component
PercentSand_60to100cm_DCP	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; dominant component
PercentSand_100to200cm_DCP	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; dominant component
PercentSilt_0to5cm_DCP	decimal(8,2)	soil physical properties; 0 to 5 cm depth; dominant component
PercentSilt_5to15cm_DCP	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; dominant component
PercentSilt_15to30cm_DCP	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; dominant component

Field	Data Type	Description
PercentSilt_30to60cm_DCP	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; dominant component
PercentSilt_60to100cm_DCP	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; dominant component
PercentSilt_100to200cm_DCP	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; dominant component
pH_0to5cm_DCP	decimal(8,2)	soil chemical properties; 0 to 5 cm depth; pH 1 to 1 water; dominant component
pH_5to15cm_DCP	decimal(8,2)	soil chemical properties; 5 cm to 15 cm depth; pH 1 to 1 water; dominant component
pH_15to30cm_DCP	decimal(8,2)	soil chemical properties; 15 cm to 30 cm depth; pH 1 to 1 water; dominant component
pH_30to60cm_DCP	decimal(8,2)	soil chemical properties; 30 cm to 60 cm depth; pH 1 to 1 water; dominant component
pH_60to100cm_DCP	decimal(8,2)	soil chemical properties; 60 cm to 100 cm depth; pH 1 to 1 water; dominant component
pH_100to200cm_DCP	decimal(8,2)	soil chemical properties; 100 cm to 200 cm depth; pH 1 to 1 water; dominant component
SoilCompactibilityRisk_DCD	nvarchar(32)	land management; dominant condition
SoilCompactionResistance_DCD	nvarchar(32)	land management; dominant condition
SoilHealth_AvailableWaterCapacity_0to1cm_DCP	decimal(8,2)	soil health properties; 0 to 1 cm depth; dominant component
SoilHealth_BulkDensity_OneThirdBar_0to1cm_DCP	decimal(8,2)	soil health properties; 0 to 1 cm depth; dominant component
SoilHealth_OrganicMatter_0to1cm_DCP	decimal(8,2)	soil health properties; 0 to 1 cm depth; dominant component
SoilHealth_SoilReaction(pH)_0to1cm_DCP	decimal(8,2)	soil health properties; 0 to 1 cm depth; dominant component
SoilHealth_SurfaceTexture_0to1cm_DCD	nvarchar(64)	soil health properties; 0 to 1 cm depth; dominant condition

Field	Data Type	Description
SoilMoistureClass_DCD	nvarchar(16)	land classification; dominant condition
SoilSusceptibilityToCompaction_DCD	nvarchar(16)	soil health; dominant condition
SoilTaxonomyClassification_DCD	nvarchar(128)	land classification; dominant condition
SurfaceSaltConcentration_DCD	nvarchar(64)	soil health; dominant condition
SurfaceTexture_0to1cm_DCD	nvarchar(64)	soil physical properties; dominant condition
WaterContent_15Bar_0to5cm_DCP	decimal(8,2)	soil physical properties; 0 to 5 cm depth; dominant component
WaterContent_15Bar_5to15cm_DCP	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; dominant component
WaterContent_15Bar_15to30cm_DCP	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; dominant component
WaterContent_15Bar_30to60cm_DCP	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; dominant component
WaterContent_15Bar_60to100cm_DCP	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; dominant component
WaterContent_15Bar_100to200cm_DCP	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; dominant component
WaterContent_OneThirdBar_0to5cm_DCP	decimal(8,2)	soil physical properties; 0 to 5 cm depth; dominant component
WaterContent_OneThirdBar_5to15cm_DCP	decimal(8,2)	soil physical properties; 5 cm to 15 cm depth; dominant component
WaterContent_OneThirdBar_15to30cm_DCP	decimal(8,2)	soil physical properties; 15 cm to 30 cm depth; dominant component
WaterContent_OneThirdBar_30to60cm_DCP	decimal(8,2)	soil physical properties; 30 cm to 60 cm depth; dominant component
WaterContent_OneThirdBar_60to100cm_DCP	decimal(8,2)	soil physical properties; 60 cm to 100 cm depth; dominant component
WaterContent_OneThirdBar_100to200cm_DCP	decimal(8,2)	soil physical properties; 100 cm to 200 cm depth; dominant component

PlotWADNRClimateSoils

Soil and Climate metrics developed by Washington Department of Natural Resources.

SoilCRA: Common Resource Areas (CRA) from USDA National Resource Conservation Service based on general soils, bedrock geology, landforms, and climate types.

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/geo/?cid=nrcs142p2_053635

WHC: Water holding capacity from NRCS

AET_V2_1981_2010: Actual Evapotranspiration using annual climate data for the 30-year normal period 1981 –2010

Deficit_V2_1981_2010: Climatic Water Deficit using annual climate data for the 30-year normal period 1981 –2010

Field	Data Type	Description
PlotID	uniqueidentifier	foreign key to join to the Plot table
SoilCommonResourceArea	nvarchar(16)	Common Resource Areas (CRA) from USDA National Resource Conservation Service based on general soils, bedrock geology, landforms, and climate types.
SoilWaterHoldingCapacity	decimal(16,8)	Water holding capacity from NRCS
AET_V2_1981_2010	decimal(16,8)	Actual Evapotranspiration using annual climate data for the 30-year normal period 1981 –2010
Deficit_V2_1981_2010	decimal(16,8)	Climatic Water Deficit using annual climate data for the 30-year normal period 1981 –2010

PlotInventorySummary

Summarized plot level field inventory. This table is the standard set of metrics.

Field	Data Type	Description
PlotID	uniqueidentifier	foreign key to join to the Plot table
TPA	decimal(38,8)	trees per acre
TPA_GE4	decimal(38,8)	trees per acre, diameter >= 4"
TPA_Top40	decimal(38,8)	trees per acre, top 40 trees per acre by diameter
TPA_Top100	decimal(38,8)	trees per acre, top 100 trees per acre by diameter
TPA_GE_D40_4	decimal(38,8)	trees per acre, diameter >= (QMD_Top40 / 4)
BAA	decimal(38,8)	basal area per acre
BAA_GE4	decimal(38,8)	basal area per acre, diameter >= 4"
BAA_Top40	decimal(38,8)	basal area per acre, top 40 trees per acre by diameter
BAA_Top100	decimal(38,8)	basal area per acre, top 100 trees per acre by diameter
BAA_GE_D40_4	decimal(38,8)	basal area per acre, diameter >= (QMD_Top40 / 4)
QMD	decimal(38,8)	quadratic mean diameter
QMD_GE4	decimal(38,8)	quadratic mean diameter, diameter >= 4"
QMD_Top40	decimal(38,8)	quadratic mean diameter, top 40 trees per acre by diameter
QMD_Top100	decimal(38,8)	quadratic mean diameter, top 100 trees per acre by diameter

Field	Data Type	Description
QMD_GE_D40_4	decimal(38,8)	quadratic mean diameter, diameter \geq (QMD_Top40 / 4)
Ht	decimal(38,8)	Lorey's height
Ht_GE4	decimal(38,8)	Lorey's height, diameter \geq 4"
Ht_Top40	decimal(38,8)	Lorey's height, top 40 trees per acre by diameter
Ht_Top100	decimal(38,8)	Lorey's height, top 100 trees per acre by diameter
Ht_GE_D40_4	decimal(38,8)	Lorey's height, diameter \geq (QMD_Top40 / 4)
Ht_Max	decimal(38,8)	maximum height
CVTS	decimal(38,8)	cubic foot volume including top and stump
CVTS_GE4	decimal(38,8)	cubic foot volume including top and stump, diameter \geq 4"
CVTS_Top40	decimal(38,8)	cubic foot volume including top and stump, top 40 trees per acre by diameter
CVTS_Top100	decimal(38,8)	cubic foot volume including top and stump, top 100 trees per acre by diameter
CVTS_GE_D40_4	decimal(38,8)	cubic foot volume including top and stump, diameter \geq (QMD_Top40 / 4)
BF	decimal(38,8)	board foot volume
BF_GE4	decimal(38,8)	board foot volume, diameter \geq 4"
BF_Top40	decimal(38,8)	board foot volume, top 40 trees per acre by diameter
BF_Top100	decimal(38,8)	board foot volume, top 100 trees per acre by diameter
BF_GE_D40_4	decimal(38,8)	board foot volume, diameter \geq (QMD_Top40 / 4)
CRD	decimal(38,8)	Curtis' relative density
CRD_GE4	decimal(38,8)	Curtis' relative density, diameter \geq 4"
CRD_GE_D40_4	decimal(38,8)	Curtis' relative density, diameter \geq (QMD_Top40 / 4)
SDI	decimal(38,8)	stand density index
SDI_GE4	decimal(38,8)	stand density index, diameter \geq 4"
SDI_GE_D40_4	decimal(38,8)	stand density index, diameter \geq (QMD_Top40 / 4)
TAB	decimal(38,8)	Jenkins total aboveground biomass
TAB_GE4	decimal(38,8)	Jenkins total aboveground biomass, diameter \geq 4"
TAB_Top40	decimal(38,8)	Jenkins total aboveground biomass, top 40 trees per acre by diameter
TAB_Top100	decimal(38,8)	Jenkins total aboveground biomass, top 100 trees per acre by diameter
TAB_GE_D40_4	decimal(38,8)	Jenkins total aboveground biomass, diameter \geq (QMD_Top40 / 4)
SnagTPA	decimal(38,8)	snags per acre
SnagBAA	decimal(38,8)	snag basal area per acre
SnagQMD	decimal(38,8)	snag quadratic mean diameter
SnagHt	decimal(38,8)	snag Lorey's height

CloudMetricsPlot

Plot level CloudMetrics values. These values were calculated for each plot using Fusion cloudmetrics. Points for each plot were clipped out using a plot circle polygon, which was created by buffering each plot center point by that plot's radius.

Field	Data Type	Description
PlotID	uniqueidentifier	foreign key to join to the Plot table
CloudMetricsMetadataID	uniqueidentifier	foreign key to join to the CloudMetricsMetadata table
total_count	int	total number of returns
total_count_HTplus	int	total number of returns above minht HT
total_first_count_HTplus	int	total first returns above minht HT
r1_cnt_HTplus	int	number of 1st returns above minht HT
r2_cnt_HTplus	int	number of 2nd returns above minht HT
r3_cnt_HTplus	int	number of 3rd returns above minht HT
r4_cnt_HTplus	int	number of 4th returns above minht HT
r5_cnt_HTplus	int	number of 5th returns above minht HT
r6_cnt_HTplus	int	number of 6th returns above minht HT
r7_cnt_HTplus	int	number of 7th returns above minht HT
r8_cnt_HTplus	int	number of 8th returns above minht HT
r9_cnt_HTplus	int	number of 9th returns above minht HT
rother_cnt_HTplus	int	number of other returns above minht HT
elev_min_HTplus	decimal(38,8)	minimum return elevation above minht HT
elev_max_HTplus	decimal(38,8)	maximum return elevation above minht HT
elev_mean_HTplus	decimal(38,8)	mean return elevation above minht HT
elev_mode_HTplus	decimal(38,8)	mode return elevation above minht HT
elev_stddev_HTplus	decimal(38,8)	standard deviation of return elevations above minht HT
elev_variance_HTplus	decimal(38,8)	variance of return elevations above minht HT
elev_CV_HTplus	decimal(38,8)	coefficient of variation of return elevations above minht HT
elev_IQ_HTplus	decimal(38,8)	interquartile range of return elevations above minht HT
elev_skewness_HTplus	decimal(38,8)	skewness of return elevations above minht HT
elev_kurtosis_HTplus	decimal(38,8)	kurtosis of return elevations above minht HT
elev_AAD_HTplus	decimal(38,8)	average absolute deviation of return elevations above minht HT
elev_MAD_median_HTplus	decimal(38,8)	median absolute deviation from the median of return elevations above minht HT
elev_MAD_mode_HTplus	decimal(38,8)	median absolute deviation from the mode of return elevations above minht HT
elev_L1_HTplus	decimal(38,8)	1st L moment of return elevations above minht HT

Field	Data Type	Description
elev_L2_HTplus	decimal(38,8)	2nd L moment of return elevations above minht HT
elev_L3_HTplus	decimal(38,8)	3rd L moment of return elevations above minht HT
elev_L4_HTplus	decimal(38,8)	4th L moment of return elevations above minht HT
elev_LCV_HTplus	decimal(38,8)	elev_L2_HTplus / elev_L1_HTplus; corresponds to coefficient of variation
elev_Lskewness_HTplus	decimal(38,8)	elev_L3_HTplus / elev_L2_HTplus; corresponds to skewness
elev_Lkurtosis_HTplus	decimal(38,8)	elev_L4_HTplus / elev_L2_HTplus; corresponds to kurtosis
elev_P01_HTplus	decimal(38,8)	1st percentile height of return elevations above minht HT
elev_P05_HTplus	decimal(38,8)	5th percentile height of return elevations above minht HT
elev_P10_HTplus	decimal(38,8)	10th percentile height of return elevations above minht HT
elev_P20_HTplus	decimal(38,8)	20th percentile height of return elevations above minht HT
elev_P25_HTplus	decimal(38,8)	25th percentile height of return elevations above minht HT
elev_P30_HTplus	decimal(38,8)	30th percentile height of return elevations above minht HT
elev_P40_HTplus	decimal(38,8)	40th percentile height of return elevations above minht HT
elev_P50_HTplus	decimal(38,8)	50th percentile height of return elevations above minht HT
elev_P60_HTplus	decimal(38,8)	60th percentile height of return elevations above minht HT
elev_P70_HTplus	decimal(38,8)	70th percentile height of return elevations above minht HT
elev_P75_HTplus	decimal(38,8)	75th percentile height of return elevations above minht HT
elev_P80_HTplus	decimal(38,8)	80th percentile height of return elevations above minht HT
elev_P90_HTplus	decimal(38,8)	90th percentile height of return elevations above minht HT
elev_P95_HTplus	decimal(38,8)	95th percentile height of return elevations above minht HT
elev_P99_HTplus	decimal(38,8)	99th percentile height of return elevations above minht HT
elev_canopy_relief_ratio_HTplus	decimal(38,8)	((elev_mean_HTplus - elev_min_HTplus) / (elev_max_HTplus - elev_min_HTplus))
elev_quadratic_mean_HTplus	decimal(38,8)	quadratic mean of return elevations above minht HT

Field	Data Type	Description
elev_cubic_mean_HTplus	decimal(38,8)	cubic mean of return elevations above minht HT
int_min_HTplus	decimal(38,8)	minimum return intensity for returns above minht HT
int_max_HTplus	decimal(38,8)	maximum return intensity for returns above minht HT
int_mean_HTplus	decimal(38,8)	mean return intensity for returns above minht HT
int_mode_HTplus	decimal(38,8)	mode return intensity for returns above minht HT
int_stddev_HTplus	decimal(38,8)	standard deviation of return intensities for returns above minht HT
int_variance_HTplus	decimal(38,8)	variance of return intensities for returns above minht HT
int_CV_HTplus	decimal(38,8)	coefficient of variation of return intensities for returns above minht HT
int_IQ_HTplus	decimal(38,8)	interquartile range of return intensities for returns above minht HT
int_skewness_HTplus	decimal(38,8)	skewness of return intensities for returns above minht HT
int_kurtosis_HTplus	decimal(38,8)	kurtosis of return intensities for returns above minht HT
int_AAD_HTplus	decimal(38,8)	average absolute deviation of return intensities for returns above minht HT
int_L1_HTplus	decimal(38,8)	1st L moment of return intensities for returns above minht HT
int_L2_HTplus	decimal(38,8)	2nd L moment of return intensities for returns above minht HT
int_L3_HTplus	decimal(38,8)	3rd L moment of return intensities for returns above minht HT
int_L4_HTplus	decimal(38,8)	4th L moment of return intensities for returns above minht HT
int_LCV_HTplus	decimal(38,8)	$\text{int_L2_HTplus} / \text{int_L1_HTplus}$; corresponds to coefficient of variation
int_Lskewness_HTplus	decimal(38,8)	$\text{int_L3_HTplus} / \text{int_L2_HTplus}$; corresponds to skewness
int_Lkurtosis_HTplus	decimal(38,8)	$\text{int_L4_HTplus} / \text{int_L2_HTplus}$; corresponds to kurtosis
int_P01_HTplus	decimal(38,8)	1st percentile of return intensities for returns above minht HT
int_P05_HTplus	decimal(38,8)	5th percentile of return intensities for returns above minht HT
int_P10_HTplus	decimal(38,8)	10th percentile of return intensities for returns above minht HT
int_P20_HTplus	decimal(38,8)	20th percentile of return intensities for returns above minht HT

Field	Data Type	Description
int_P25_HTplus	decimal(38,8)	25th percentile of return intensities for returns above minht HT
int_P30_HTplus	decimal(38,8)	30th percentile of return intensities for returns above minht HT
int_P40_HTplus	decimal(38,8)	40th percentile of return intensities for returns above minht HT
int_P50_HTplus	decimal(38,8)	50th percentile of return intensities for returns above minht HT
int_P60_HTplus	decimal(38,8)	60th percentile of return intensities for returns above minht HT
int_P70_HTplus	decimal(38,8)	70th percentile of return intensities for returns above minht HT
int_P75_HTplus	decimal(38,8)	75th percentile of return intensities for returns above minht HT
int_P80_HTplus	decimal(38,8)	80th percentile of return intensities for returns above minht HT
int_P90_HTplus	decimal(38,8)	90th percentile of return intensities for returns above minht HT
int_P95_HTplus	decimal(38,8)	95th percentile of return intensities for returns above minht HT
int_P99_HTplus	decimal(38,8)	99th percentile of return intensities for returns above minht HT
first_cover_aboveHT	decimal(38,8)	percentage of first returns above a specified height HT
all_cover_aboveHT	decimal(38,8)	percentage of all returns above a specified height HT
all_first_cover_aboveHT	decimal(38,8)	(all returns above HT) / (total first returns) * 100; when the "first" switch is used, all returns is only first returns
first_cnt_aboveHT	int	number of first returns above height HT
all_cnt_HTplus	int	number of all returns above height HT; when the "first" switch is used, all returns is only first returns
first_cover_above_mean	decimal(38,8)	percentage of first returns above mean
first_cover_above_mode	decimal(38,8)	percentage of first returns above mode
all_cover_above_mean	decimal(38,8)	percentage of all returns above mean; when the "first" switch is used, all returns is only first returns
all_cover_above_mode	decimal(38,8)	percentage of all returns above mode; when the "first" switch is used, all returns is only first returns
all_first_cover_above_mean	decimal(38,8)	(all returns above mean) / (total first returns) * 100; when the "first" switch is used, all returns is only first returns

Field	Data Type	Description
all_first_cover_above_mode	decimal(38,8)	(all returns above mode) / (total first returns) * 100; when the "first" switch is used, all returns is only first returns
first_cnt_above_mean	int	number of first returns above mean
first_cnt_above_mode	int	number of first returns above mode
all_cnt_above_mean	int	number of all returns above mean; when the "first" switch is used, all returns is only first returns
all_cnt_above_mode	int	number of all returns above mode; when the "first" switch is used, all returns is only first returns
first_cnt	int	total number of first returns used to calculate cover metrics
all_cnt	int	total number of all returns used to calculate cover metrics; when the "first" switch is used, all returns is only first returns
profile_area	decimal(38,8)	the area under the height percentile profile or curve; see Fusion manual for description

CloudMetricsMetadata

Details about how each row in CloudMetricsPlot was produced. This includes information on which input point cloud was used, when it was processed, and the CloudMetrics processing options. These descriptions are not authoritative, please refer to the Fusion manual for more details about CloudMetrics and the processing options.

Field	Data Type	Description
CloudMetricsMetadataID	uniqueidentifier	unique, auto-generated ID for each cloud metrics set
DataSourceType	nvarchar(8)	"LIDAR" or "DAP"
DataSourceDescription	nvarchar(256)	LIDAR acquisition name/year or DAP acquisition year
ProcessedDate	date	date cloud metrics processing was performed
FusionSwitch_above	decimal(8,3)	CloudMetrics processing option; heightbreak used for cover calculations
FusionSwitch_new	bit	CloudMetrics processing option; create a new output file and delete any existing file with the same name
FusionSwitch_firstinpulse	bit	CloudMetrics processing option; use only the first return for a pulse to compute metrics
FusionSwitch_first	bit	CloudMetrics processing option; use only first returns to compute metrics
FusionSwitch_highpoint	bit	CloudMetrics processing option; produce a limited set of metrics using only the highest return

Field	Data Type	Description
FusionSwitch_subset	tinyint	CloudMetrics processing option; produce a limited set of metrics
FusionSwitch_id	bit	CloudMetrics processing option; create an identifier for the output record based on the input data file name
FusionSwitch_rid	bit	CloudMetrics processing option; create an identifier for the output record based on the end of the input data file name
FusionSwitch_pa	bit	CloudMetrics processing option; output percentile data used to compute canopy profile area
FusionSwitch_minht	decimal(8,3)	CloudMetrics processing option; use only returns with height above minht
FusionSwitch_maxht	decimal(8,3)	CloudMetrics processing option; use only returns with height below maxht
FusionSwitch_outlierLow	decimal(8,3)	CloudMetrics processing option; omit low outlier points with elevations below low
FusionSwitch_outlierHigh	decimal(8,3)	CloudMetrics processing option; omit high outlier points with elevation above high
FusionSwitch_ignoreoverlap	bit	CloudMetrics processing option; ignore points with the overlap flag set in the LAS file
FusionSwitch_strata	nvarchar(256)	CloudMetrics processing option; count returns in various height strata
FusionSwitch_intstrata	decimal(8,3)	CloudMetrics processing option; compute metrics using the intensity values in various height strata
FusionSwitch_kdeWindow	decimal(8,3)	CloudMetrics processing option; window width for a kernel density estimator
FusionSwitch_kdeMultiplier	decimal(8,3)	CloudMetrics processing option; multiplier for a kernel density estimator
FusionSwitch_rgb	nvarchar(1)	CloudMetrics processing option; compute intensity metrics using the R, G, or B value from a return
DTMSource	nvarchar(256)	Name of the DTM used in processing the CloudMetrics