# VMap mid-level database (version 11)

## Metadata:



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*Identification_Information:*

*Citation:*

*Citation_Information:*

*Originator:* USDA Forest Service, Northern Region, Engineering, Geospatial Group

*Publication_Date:* April, 2011

*Publication_Time:* Unknown

*Title:*

VMap mid-level database (version 11)

*Geospatial_Data_Presentation_Form:* digital data

*Publication_Information:*

*Publication_Place:* Missoula, MT

*Publisher:* USDA Forest Service, Northern Region, Engineering, Geospatial Group

*Online_Linkage:* http://www.fs.fed.us/r1/gis/VMapWebPage.htm

*Description:*

*Abstract:*

VMap is a multi-level, existing vegetation geospatial database used to produce four primary map products; lifeform, tree canopy cover class, tree diameter, and tree dominance type. Additional add-ons to the database are included for Eastside forests to address non-forest map classes (e.g., grassland and shrubland dominance types, shrub canopy cover, and non-forest litter). The VMap database can produce products to meet information needs at various levels of analysis according to National and Regional direction established by the Existing Vegetation Classification and Mapping Technical Guide (Brohman and Bryant, 2005) and the Region 1 Multi-level Classification, Mapping, Inventory, and Analysis System (Berglund and others, 2009). This feature class (VMap_Mid) is to be used at mid-levels (e.g., forest-wide) of analysis and contains features at least 5 acres in size. This mid-level feature class was constructed from the base-level feature class and associated attributes. The details of vegetation classification, base-level database development, and VMap accuracy assessment are included in a variety of documents posted on the VMap web site (http://www.fs.fed.us/r1/gis/VMapWebPage.htm).

*Purpose:*

This dataset was produced for use at mid levels of analysis and planning.
*Time_Period_of_Content:*
*Time_Period_Information:*
*Single_Date/Time:*
*Calendar_Date:* 04/23/11
*Currentness_Reference:*
publication date
*Status:*
*Progress:* Complete
*Maintenance_and_Update_Frequency:* As needed
*Spatial_Domain:*
*Bounding_Coordinates:*
*West_Bounding_Coordinate:* -112.974015
*East_Bounding_Coordinate:* -111.003510
*North_Bounding_Coordinate:* 47.290333
*South_Bounding_Coordinate:* 46.072279
*Keywords:*
*Theme:*
*Theme_Keyword_Thesaurus:* satellite imagery
*Theme_Keyword:* Landsat 7
*Theme_Keyword:* R1-VMap
*Theme_Keyword:* eCognition
*Theme_Keyword:* lifeform
*Theme_Keyword:* tree dominance type
*Theme_Keyword:* tree canopy cover
*Theme_Keyword:* tree size
*Theme_Keyword:* hierarchical classification
*Theme_Keyword:* Biology, Ecology, and Biophysical
*Place:*
*Place_Keyword:* Northern Rockies
*Access_Constraints:* This dataset is in the public domain, and the recipient may not assert any proprietary rights thereto nor represent it to anyone as other than a dataset produced by the USDA Forest Service, Northern Region.
*Use_Constraints:*
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*Point_of_Contact:*
*Contact_Information:*
*Contact_Person_Primary:*
*Contact_Person:* Don Patterson

*Contact_Organization:* USDA Forest Service, Northern Region, Engineering, Geospatial Group
*Contact_Position:* Geospatial Services Group Leader
*Contact_Address:*
*Address_Type:* physical address
*Address:*
200 East Broadway
*City:* Missoula
*State_or_Province:* MT
*Postal_Code:* 59802
*Country:* USA
*Contact_Address:*
*Address_Type:* mailing address
*Address:*
P.O.Box 7669
*City:* Missoula
*State_or_Province:* MT
*Postal_Code:* 59807
*Country:* USA
*Contact_Voice_Telephone:* 406.329.3430
*Contact_Facsimile_Telephone:* 406.329.3198
*Contact_Electronic_Mail_Address:* dpatterson01@fs.fed.us
*Hours_of_Service:* Monday-Friday, 8am-4:30 pm (MST)
*Contact Instructions:*
email preferred
*Native_Data_Set_Environment:*
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.2.6.1500

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*Data_Quality_Information:*
*Positional_Accuracy:*
*Horizontal_Positional_Accuracy:*
*Horizontal_Positional_Accuracy_Report:*
<15 meters
*Quantitative_Horizontal_Positional_Accuracy_Assessment:*
*Horizontal_Positional_Accuracy_Value:* 15
*Lineage:*
*Source_Information:*
*Source_Citation:*
*Citation_Information:*
*Title:*
VMap Base-level Feature Class
*Type_of_Source_Media:*
*Source_Time_Period_of_Content:*
*Time_Period_Information:*
*Single_Date/Time:*

*Calendar_Date:*
*Source_Currentness_Reference:*
ground condition
*Source_Citation_Abbreviation:*
VMap_Base
*Source_Contribution:*
This is the starting features from which the mid-level feature class was constructed.
*Source_Information:*
*Source_Citation:*
*Citation_Information:*
*Title:*
Orthorectified NAIP data (imagery)
*Type_of_Source_Media:* CD-ROM
*Source_Time_Period_of_Content:*
*Time_Period_Information:*
*Single_Date/Time:*
*Calendar_Date:* July & August/2009
*Source_Currentness_Reference:*
ground condition
*Source_Citation_Abbreviation:*
summer imagery
*Source_Contribution:*
These are the four channel NAIP image data.
*Source_Information:*
*Source_Citation:*
*Citation_Information:*
*Title:*
Texture image bands
*Source_Citation_Abbreviation:*
Texture
*Source_Contribution:*
A series of calculations of texture were created from the color infrared NAIP imagery and used in the eCognition segmentation and map classification. Texture calculates a variance (minimum, mean) from an adaptive window around each pixel as its measure of texture. The resulting texture image or band is a composite of minimum variance values calculated for each pixel. Two sets of three banded texture images were created using these focal windows and parameters: The first three banded image was created from 1m NAIP using a minimum variance and focal windows of (3x3), (5X5), and (9X9), then resampled back to 5meters; the second three banded texture image was created from 5m NAIP using a mean variance and focal windows of (3X3), (5X5) and (9x9).
*Process_Step:*
*Process_Description:*
The R1-Merge program was used to create polygons at least 5 acres in size from the base-level VMap product. Merge criteria included mean PCA (principle component analysis) and TEX (texture) based on the NAIP CIR

data. This merge process was done on each modeling unit then appended together.

*Process_Contact:*

*Contact_Information:*

*Contact_Person_Primary:*

*Process_Step:*

*Process_Description:*

A majority vegetation attribute class was assigned to each resulting polygon using a ZONAL MAJORITY function based on the base-level product. When inconsistencies were encountered (e.g., TREE dominance type but HERB lifeform), preference was given to the dominance group 6040 attribute and other attributes were changed (e.g., lifeform) to resolve inconsistencies. When an attribute needed to be assigned in an instance where the attribute was unknown, the most common attribute in the database was used: TREECANOPY=4002, TREESIZE=4300, SHRUBCANOPY=3321, NONFORLITT=3002.

*Process_Step:*

*Process_Description:*

Metadata imported.

*Source_Used_Citation_Abbreviation:*

C:\DOCUME~1\cfisher\LOCALS~1\Temp\xmlE.tmp

*Process_Date:* 20110404

*Process_Time:* 09184100

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*Spatial_Data_Organization_Information:*

*Direct_Spatial_Reference_Method:* Vector

*Point_and_Vector_Object_Information:*

*SDTS_Terms_Description:*

*SDTS_Point_and_Vector_Object_Type:* G-polygon

*Point_and_Vector_Object_Count:* 500000+

*Raster_Object_Information:*

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*Spatial_Reference_Information:*

*Horizontal_Coordinate_System_Definition:*

*Planar:*

*Map_Projection:*

*Map_Projection_Name:* Albers Conical Equal Area

*Albers_Conical_Equal_Area:*

*Standard_Parallel:* 46.000000

*Standard_Parallel:* 48.000000

*Longitude_of_Central_Meridian:* -109.500000

*Latitude_of_Projection_Origin:* 44.000000

*False_Easting:* 600000.000000

*False_Northing:* 0.000000

*Planar_Coordinate_Information:*

*Planar_Coordinate_Encoding_Method:* row and column

*Coordinate_Representation:*

*Abscissa_Resolution:* 5.000000
*Ordinate_Resolution:* 5.000000
*Planar_Distance_Units:* meters
*Geodetic_Model:*
*Horizontal_Datum_Name:* North American Datum of 1983
*Ellipsoid_Name:* Geodetic Reference System 80
*Semi-major_Axis:* 6378137.000000
*Denominator_of_Flattening_Ratio:* 298.257222
*Vertical_Coordinate_System_Definition:*
*Altitude_System_Definition:*
*Altitude_Resolution:* 0.000100
*Altitude_Encoding_Method:* Explicit elevation coordinate included with horizontal coordinates

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*Entity_and_Attribute_Information:*
*Detailed_Description:*
*Entity_Type:*
*Entity_Type_Label:* VMap_Mid
*Attribute:*
*Attribute_Label:* OBJECTID
*Attribute_Definition:*
Internal ESRI number
*Attribute_Definition_Source:*
ESRI
*Attribute_Domain_Values:*
*Unrepresentable_Domain:*
Sequential unique whole numbers that are automatically generated.
*Attribute:*
*Attribute_Label:* SHAPE
*Attribute_Definition:*
Internal ESRI number
*Attribute_Definition_Source:*
ESRI
*Attribute_Domain_Values:*
*Unrepresentable_Domain:*
Coordinates defining the features.
*Attribute:*
*Attribute_Label:* GRID_CODE
*Attribute_Definition:*
Unique identifier for the polygon from segmentation process from each model.
*Attribute:*
*Attribute_Label:* ACRES
*Attribute_Definition:*
Area of the polygon in acres
*Attribute:*
*Attribute_Label:* LIFEFORM

*Attribute_Definition:*

```
Enumerated_Domain  3100 HERB - Herbaceous
Enumerated_Domain  3300 SHRUB - Shrubland
Enumerated_Domain  4000 TREE - Tree
Enumerated_Domain  5000 WATER - Water
Enumerated_Domain  7000 SPVEG - Sparsely Vegetated
```

*Attribute:*

*Attribute_Label:* DOM_MID_40

*Attribute_Definition:*

```
Enumerated_Domain  3160 GRASS-DRY - Dry grass
Enumerated_Domain  3190 GRASS-WET - Wet grass
Enumerated_Domain  3320 SHRUB-XERIC - Xeric shrub
Enumerated_Domain  3330 SHRUB-MESIC - Mesic shrub
Enumerated_Domain  5000 WATER - Water
Enumerated_Domain  7000 SPVEG - Sparsely vegetated
Enumerated_Domain  8015 MX-PIPO - Ponderosa pine dominated (>40%
relative cover)
Enumerated_Domain  8025 MX-PSME - Douglas fir dominated (>40% relative
cover)
Enumerated_Domain  8055 MX-PICO - Lodgepole pine dominated (>40%
relative cover)
Enumerated_Domain  8065 MX-ABLA - Subalpine fir dominated (>40%
relative cover)
Enumerated_Domain  8075 MX-PIEN - Englemann spruce dominated (>40%
relative cover)
Enumerated_Domain  8125 MX-PIAL - Whitebark pine dominated (>40%
relative cover)
Enumerated_Domain  8155 MX-PIFL2 - Limber pine dominated (>40% relative
cover)
Enumerated_Domain  8165 MX-POPUL - Cottonwood dominated (>40% relative
cover)
Enumerated_Domain  8175 MX-POTR5 - Aspen dominated (>40% relative
cover)
Enumerated_Domain  8185 MX-JUNIP - Juniper dominated (>40% relative
cover)
Enumerated_Domain  8400 IMIX - Shade-intolerant conifer mix (no single
species >40% relative cover)
Enumerated_Domain  8500 TMIX - Shade-tolerant conifer mix (no single
species >40% relative cover)
Enumerated_Domain  8600 HMIX - Hardwood mix (no single species >40%
relative cover)
```

*Attribute:*

*Attribute_Label:* DOM_MID_60

*Attribute_Definition:*

```
Enumerated_Domain  3160 GRASS-DRY - Dry grass
Enumerated_Domain  3190 GRASS-WET - Wet grass
Enumerated_Domain  3320 SHRUB-XERIC - Xeric shrub
Enumerated_Domain  3330 SHRUB-MESIC - Mesic shrub
Enumerated_Domain  5000 WATER - Water
Enumerated_Domain  7000 SPVEG - Sparsely vegetated
Enumerated_Domain  8010 PIPO - Ponderosa pine dominated (>60% relative
cover)
Enumerated_Domain  8020 PSME - Douglas fir dominated (>60% relative
cover)
```

Enumerated_Domain  8050 PICO - Lodgepole pine dominated (>60% relative cover)
Enumerated_Domain  8060 ABLA - Subalpine fir dominated (>60% relative cover)
Enumerated_Domain  8070 PIEN - Englemann spruce dominated (>60% relative cover)
Enumerated_Domain  8120 PIAL - Whitebark pine dominated (>60% relative cover)
Enumerated_Domain  8150 PIFL2 - Limber pine dominated (>60% relative cover)
Enumerated_Domain  8160 POPUL - Cottonwood dominated (>60% relative cover)
Enumerated_Domain  8170 POTR5 - Aspen dominated (>60% relative cover)
Enumerated_Domain  8180 JUNIP - Juniper dominated (>60% relative cover)
Enumerated_Domain  8400 IMIX - Shade-intolerant conifer mix (no single species >60% relative cover)
Enumerated_Domain  8500 TMIX - Shade-tolerant conifer mix (no single species >60% relative cover)
Enumerated_Domain  8600 HMIX - Hardwood mix (no single species >60% relative cover)

*Attribute:*

*Attribute_Label:* DOM_GRP_6040

*Attribute_Definition:*

Enumerated_Domain  3170 GRASS-BUNCH - Bunchgrass
Enumerated_Domain  3180 GRASS-SINGLESTEM - Single-stem grass
Enumerated_Domain  3190 GRASS-WET - Wet grass
Enumerated_Domain  3320 SHRUB-XERIC - Xeric shrub
Enumerated_Domain  3330 SHRUB-MESIC - Mesic shrub
Enumerated_Domain  5000 WATER - Water
Enumerated_Domain  7000 SPVEG - Sparsely vegetated
Enumerated_Domain  8010 PIPO - Ponderosa pine dominated (>60% relative cover)
Enumerated_Domain  8013 PIPO-IMIX - Ponderosa pine intolerant conifer mix (>40% relative cover)
Enumerated_Domain  8020 PSME - Douglas fir dominated (>60% relative cover)
Enumerated_Domain  8023 PSME-IMIX - Douglas fir intolerant conifer mix (>40% relative cover)
Enumerated_Domain  8050 PICO - Lodgepole pine dominated (>60% relative cover)
Enumerated_Domain  8053 PICO-IMIX - Lodgepole pine intolerant conifer mix (>40% relative cover)
Enumerated_Domain  8054 PICO-TMIX - Lodgepole pine tolerant conifer mix (>40% relative cover)
Enumerated_Domain  8060 ABLA - Subalpine fir dominated (>60% relative cover)
Enumerated_Domain  8064 ABLA-TMIX - Subalpine fir tolerant conifer mix (>40% relative cover)
Enumerated_Domain  8070 PIEN - Englemann spruce dominated (>60% relative cover)
Enumerated_Domain  8074 PIEN-TMIX - Englemann spruce tolerant conifer mix (>40% relative cover)
Enumerated_Domain  8120 PIAL - Whitebark pine dominated (>60% relative cover)
Enumerated_Domain  8123 PIAL-IMIX - Whitebark pine intolerant conifer mix (>40% relative cover)

Enumerated_Domain  8150 PIFL2 - Limber pine dominated (>60% relative cover)
Enumerated_Domain  8153 PIFL2-IMIX - Limber pine intolerant conifer mix (>40% relative cover)
Enumerated_Domain  8160 POPUL - Cottonwood dominated (>60% relative cover)
Enumerated_Domain  8170 POTR5 - Aspen dominated (>60% relative cover)
Enumerated_Domain  8180 JUNIP - Juniper dominated (>60% relative cover)
Enumerated_Domain  8183 JUNIP-IMIX - Juniper intolerant conifer mix (>40% relative cover)
Enumerated_Domain  8400 IMIX - Shade-intolerant conifer mix (no single species >60% relative cover)
Enumerated_Domain  8500 TMIX - Shade-tolerant conifer mix (no single species >60% relative cover)
Enumerated_Domain  8600 HMIX - Hardwood mix (no single species >60% relative cover)

*Attribute:*

*Attribute_Label:* TREECANOPY

*Attribute_Definition:*

Enumerated_Domain  4001 CTR 10-24.9% - CTR 10-24.9%
Enumerated_Domain  4002 CTR 25-39.9% - CTR 25-39.9%
Enumerated_Domain  4003 CTR 40-59.9% - CTR 40-59.9%
Enumerated_Domain  4004 CTR >= 60% - CTR > 60%
Enumerated_Domain  3100 HERB - Herbaceous
Enumerated_Domain  3300 SHRUB - Shrub
Enumerated_Domain  5000 WATER - Water
Enumerated_Domain  7000 SPVEG - Sparsely vegetated
Enumerated_Domain  8600 TREE-DECID - Deciduous Tree

*Attribute:*

*Attribute_Label:* TREESIZE

*Attribute_Definition:*

Enumerated_Domain  4100 DBH 0-4.9" - Basal area weighted average diameter 0-4.9"
Enumerated_Domain  4200 DBH 5-9.9" - Basal area weighted average diameter 5-9.9"
Enumerated_Domain  4300 DBH 10-14.9" - Basal area weighted average diameter 10-14.9"
Enumerated_Domain  4400 DBH >= 15" - Basal area weighted average diameter > 15"
Enumerated_Domain  3100 HERB - Herbaceous
Enumerated_Domain  3300 SHRUB - Shrub
Enumerated_Domain  5000 WATER - Water
Enumerated_Domain  7000 SPVEG - Sparsely vegetated
Enumerated_Domain  8600 TREE-DECID - Deciduous Tree

*Attribute:*

*Attribute_Label:* ELEV

*Attribute_Definition:*

Average elevation of the polygon in meters

*Attribute:*

*Attribute_Label:* ASP_CLS

*Attribute_Definition:*

Enumerated_Domain  FLAT - Flat (slope < 5%)
Enumerated_Domain  N - North (338-360 & 0-22 degrees)
Enumerated_Domain  NE - Northeast (23-68 degrees)

Enumerated_Domain  E - East (68-112 degrees)
Enumerated_Domain  SE - Southeast (113-157 degrees)
Enumerated_Domain  S - South (158-202 degrees)
Enumerated_Domain  SW - Southwest (203-247 degrees)
Enumerated_Domain  W - West (248-292 degrees)
Enumerated_Domain  NW - Northwest (293-337 degrees)

*Attribute:*
*Attribute_Label:* SLOPE
*Attribute_Definition:*
Average percent slope of the polygon
*Attribute:*
*Attribute_Label:* SHAPE_Length
*Attribute_Definition:*
Length of feature in internal units.
*Attribute_Definition_Source:*
ESRI
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*Unrepresentable_Domain:*
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*Attribute:*
*Attribute_Label:* SHAPE_Area
*Attribute_Definition:*
Area of feature in internal units squared.
*Attribute_Definition_Source:*
ESRI
*Attribute_Domain_Values:*
*Unrepresentable_Domain:*
Positive real numbers that are automatically generated.

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*Distribution_Information:*

*Distributor:*
*Contact_Information:*
*Contact_Person_Primary:*
*Contact_Person:* Jim Barber
*Contact_Organization:* USDA Forest Service, Northern Region, Engineering, Geospatial Group
*Contact_Position:* GIS Specialist
*Contact_Voice_Telephone:* 406-329-3093
*Contact_Facsimile_Telephone:* 406-329-3199
*Contact_Electronic_Mail_Address:* jbarber@fs.fed.us
*Hours_of_Service:* M-F, 8am-4pm (MST)
*Resource_Description:* R1-VMap Dataset
*Distribution_Liability:*
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*Metadata_Reference_Information:*
*Metadata_Date:* 20090422
*Metadata_Contact:*
*Contact_Information:*
*Contact_Organization_Primary:*
*Contact_Organization:* USDA Forest Service, Northern Region, Engineering, Geospatial Group
*Contact_Person:* Steve Brown
*Contact_Position:* Region 1 Remote Sensing Specialist
*Contact_Address:*
*Address_Type:* mailing and physical address
*Address:*
P.O. Box 7669
*Address:*
200 East Broadway
*City:* Missoula
*State_or_Province:* MT
*Postal_Code:* 59807
*Country:* USA
*Contact_Address:*
*Address_Type:* physical address
*Address:*
P.O. Box 7669
*Address:*
200 East Broadway
*City:* Missoula
*State_or_Province:* MT
*Postal_Code:* 59807
*Country:* USA
*Contact_Voice_Telephone:* 406.329.3514
*Contact_Facsimile_Telephone:* 406.329.3198
*Contact_Electronic_Mail_Address:* stevebrown@fs.fed.us
*Hours_of_Service:* M_F, 8am-4pm (MST)
*Contact Instructions:*
email preferred
*Metadata_Standard_Name:* FGDC Content Standards for Digital Geospatial Metadata
*Metadata_Standard_Version:* FGDC-STD-001-1998
*Metadata_Time_Convention:* local time
*Metadata_Extensions:*
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*Profile_Name:* ESRI Metadata Profile

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