MnModel Historical Vegetation Model, Minnesota

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Section 1: Overview

Originator: Minnesota Department of Transportation

Title: MnModel Historical Vegetation Model, Minnesota

Abstract: The Historical Vegetation Model (VEGMOD) is a high resolution statistical model of vegetation at the time of the Public Land Survey.

Purpose: The purpose of this data is to represent vegetation at the time of the Public Land Survey for use in the MnModel project for predicting the potential for finding unknown archaeological sites early in the transportation construction planning process, so that impacts on these sites can be avoided.

This dataset is best suited for general reference only. It is not suitable for precise land measurements or ground surveys.

For more information please visit MnModel's website: https://www.dot.state.mn.us/mnmodel/index.html

Time Period of Content Date:

Currentness Reference: Public Land Survey Data for Minnesota date from 1848-1907. VEGMOD was created in 2018.

Progress: Complete

Maintenance and Update Frequency: None Planned

Spatial Extent of Data: Minnesota with 15 mile buffer

Bounding Coordinates: -97.374
-89.259
49.463
43.310

Place Keywords: Minnesota

Theme Keywords: biota, Vegetation, Historic Vegetation, Public Land Survey, Historic Landscape, Mn/Model4, MnModel

Theme Keyword Thesaurus: ISO 19115 Topic Category

Access Constraints: None

Use Constraints: This dataset is best suited for general reference only. It is not suitable for precise land measurements or ground surveys.

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Browse Graphic: Click to view a data sample.

Associated Data Sets: Original Public Land Survey Plats of Minnesota, Original Land Survey Bearing Trees, PLS Corners with Presettlement Vegetation Information,

MnModel.

For more information please visit MnModel's
website: https://www.dot.state.mn.us/mnmodel/index.html

Section 2: Data Quality

Attribute Accuracy: VEGMOD is a model, based on statistical analysis of interpreted data. At best, it indicates approximate potential natural vegetation at the time of the Public Land Survey, based on surveyor's observations and modern terrain and soils data. Accuracy is highest for dominant vegetation types and becomes very low for rare vegetation types.

Logical Consistency: Data have been topologically structured and verified.

Completeness: Complete

Horizontal Positional Accuracy: Unknown. Input data source scales vary from 1:20,000 (gSSURGO) to 1:24,000 (locations of section corners and survey lines to which surveyor's observations were attached). The map scale of the Public Land Survey plat
maps, from which many lake boundaries were derived, is not reported. This is a model and is meant for general reference only.

Lineage: General Land Office surveyors' observations were recorded from their line notes by MN DNR in three datasets (points at section and quarter-section corners for nearly the entire state, bearing trees for nearly the entire state, and lines for approximately the northern half of the state. MnDOT reviewed these data and classified the point data vegetation types based on Minnesota's Native Vegetation: A Key to Natural Communities, Version 1.5 (MN DNR). Environmental variables thought to be important for vegetation distributions were extracted from terrain and soils data and from the MnModel Landscape Model (LANDMOD).

Variables were sampled at the points for which vegetation data were available and analyzed using multivariate statistics. Statistical models (random forest) were run in R for each of twenty regions, based on Ecological Classification System subsections. The regions were then mosaicked to create a statewide model. The resultant model

predicts the distribution of vegetation classes at the time of the Public Land Survey. To complete the model, historic lakes and rivers from the MnModel Hydrographic Model (HISTHYD) were inserted into the model.

Users should be aware that dominant vegetation types are more accurately predicted than rare vegetation types. In southwestern Minnesota, trees were so rare that all woody vegetation types (floodplain forest and oak savanna, for example), though present, were dropped from the model altogether. Likewise, shrub swamps were infrequently mentioned by surveyors, so they do not appear in the model.

Section 3: Spatial Data Organization (not used in this metadata)

Section 4: Coordinate System

Horizontal Coordinate Scheme: Universal Transverse Mercator

UTM Zone Number: 15

Horizontal Datum: NAD83

Horizontal Units: meters

Vertical Datum: not applicable

Vertical Units:

Depth Datum: not applicable

Depth Units:

Cell Width: 10

Cell Height: 10

Section 5: Attributes

Overview:

Detailed Citation: The classification scheme adopted for this vegetation model is generalized from Minnesota's Native Vegetation: A Key to Natural Communities, Version 1.5 (MN DNR, https://files.dnr.state.mn.us/eco/nhnrp/nckey.pdf).

Table Detail: Attribute definitions for Historical Vegetation Model

Field values for modtype:

Valid Values modtype	Definition Vegetation Type
-999	NoData
100	Lake
150	Wetland
200	River
210	Bog
220	Conifer Swamp
230	Marsh
240	Floodplain Forest
250	Hardwood Swamp
270	Wet Meadow/Fen
310	Pine Forest
311	Jack Pine Forest
312	Red Pine Forest
313	White Pine Forest
321	Spruce-Fir Forest
322	Black Spruce-Feathermoss Forest
323	Upland White Cedar Forest
330	Pine Barrens
341	Jack Pine Woodland

342 Northern Conifer Woodland
351 Boreal Hardwood-Conifer Forest
352 Mixed Pine-Hardwood Forest
353 Northern Hardwood Conifer Forest
354 White Pine-Hardwood Forest
361 Aspen Forest
362 Aspen-Birch Forest
363 Paper Birch Forest
364 Lowland Hardwood Forest
365 Maple-Basswood Forest
366 Northern Hardwood Forest
367 Oak Forest
371 Aspen Openings
372 Oak Savanna
381 Aspen Woodland
382 Oak Woodland
391 Brush-Prairie
392 Prairie

Valid Values	Definition
veg_class	Vegetation Class
100	Surface Water
150	Seasonally Wet
200	Surface Water
210	Permamently Wet
220	Permanently Wet
230	Permanently Wet
240	Seasonally Wet
250	Permanently Wet
270	Seasonally Wet
310	Coniferous Forest
311	Coniferous Forest
312	Coniferous Forest
313	Coniferous Forest
321	Coniferous Forest
322	Coniferous Forest
323	Coniferous Forest

330 Coniferous Savanna
341 Coniferous Woodland
342 Coniferous Woodland
351 Mixed Coniferous-Deciduous Forest
352 Mixed Coniferous-Deciduous Forest
353 Mixed Coniferous-Deciduous Forest
354 Mixed Coniferous-Deciduous Forest
361 Deciduous Forest
362 Deciduous Forest
363 Deciduous Forest
364 Deciduous Forest
365 Deciduous Forest
366 Deciduous Forest
367 Deciduous Forest
371 Deciduous Savanna
372 Deciduous Savanna
381 Deciduous Woodland
382 Deciduous Woodland
391 Brush Prairie
392 Prairie

Section 6: Distribution

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Distributor's Data Set Identifier: Mn/Model4 Historical Vegetation Model (VEGMOD)

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Ordering Instructions: Please visit the download page for this dataset on the Minnesota Geospatial Commons website using the web link below (Online Linkage).

The following citation is suggested for reference:
Minnesota Department of Transportation. Mn/Model4: Historical Vegetation Model. Saint Paul, MN.: Cultural Resources Unit, Office of Environmental Stewardship, 2018.

Online Linkage: I AGREE to the notice in "Distribution Liability" above. Clicking to agree will either begin the download process, link to a service, or provide more instructions. See "Ordering Instructions" above for details.

Section 7: Metadata Reference

Metadata Date: 09/09/2019

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Metadata Standard Version: 1.2

Metadata Standard Online Linkage:
http://www.mngeo.state.mn.us/committee/standards/mgmg/metadata.htm

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