Dendroecological Database

Metadata

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About the Dendroecological Database

The Dendroecological Database, founded in 2017, is a collaborative effort among the U.S.D.A. Forest Service Northern Research Station, the University of Vermont (College of Arts and Sciences and the Rubenstein School of the Environment and Natural Resources) and the Forest Ecosystem Monitoring Cooperative. The goal of the database is to provide a central archive for data derived from dendroecological studies, including tree-ring-based chronologies and their associated forest ecology data. At present, there is no such database in existence and many dendroecological collections are not readily available to the greater research community for comparative and larger-scale analyses.

This database, intended for the free and public use by the dendroecology, forest ecology and natural resource management communities, allows for the investigation, integration, synthesis and understanding of our forests in the past, present and future. The Dendrochronological Database fully supports information sharing, collaboration and discovery, and implements the best available standards for data archive, documentation and interoperability, including the Tree Ring Data Standard and Ecological Metadata Language.

Metadata for Individual Data Tables

The files downloaded from the Dendroecological Database are in CSV format, with column headers and data ordered in rows. The column definitions of each table available from the database are described below.
Plot Data

PlotID
Text: Alphanumeric text string to uniquely identify the plot within the project.

DateCollected
Text: Date when tree cores were collected (YYYY-MM-DD).

Crew
Text: List of names inicials of people who collected the samples.

Latitude
Decimal: Plot center latitude, in the units defined by the spatial reference system (see “Projection” field description), often decimal degrees.

Longitude
Decimal: Plot center longitude, in the units defined by the spatial reference system (see “Projection” field description), often decimal degrees.

Projection
Text: Spatial reference system for the plot location coordinates. Typical coordinate projections are EPSG:4326 (WGS84) and EPSG:2953 (NAD83), with the former being common on hand-held GPS devices. For other projections, see http://spatialreference.org.

SiteDescription
Text: Visual description of the plot, possibly describing (but not limited to): the density and composition of understory plants, notable topographic characteristics (slope, aspect, etc.), tree species composition and density, size class distribution, and disturbance evidence.

StandDensity
Decimal: Basal area density of plot, in m²/hectare. Typically collected using a 10BAF prism, or similar tool.

Notes
Text: Any additional information about the plot.

Tree Data

PlotID
Text: Alphanumeric text string to uniquely identify the plot within the project.

TreeID
Text: Alphanumeric text string to uniquely denote the tree within the plot.

Species
Text: Species code as recorded in the data. This should match to a definition in the taxonomic standard defined for the project, such as the USDA Plants Database.

Status
Text: Indicates if tree is live or dead at time of sampling.

Diameter
Decimal: Diameter, typically measured at breast height (4.5 ft/1.37m above ground).
**Units**

Text: Units of the diameter measurement, typically inches or centimeters.

**CrownPosition**

Text: Visual assessment of the position of the tree’s crown: dominant, codominant, intermediate, or suppressed.

<table>
<thead>
<tr>
<th>Crown position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominant</td>
<td>Crown extends above the main canopy; receives full light from above and partial light from the sides.</td>
</tr>
<tr>
<td>Codominant</td>
<td>Crown forms the main canopy; receives full light from above and relatively little light from the sides.</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Crown lower than or just entering the main canopy; receives little direct light from above and none from the sides.</td>
</tr>
<tr>
<td>Suppressed</td>
<td>Crown is fully below the main canopy; receives no direct light from above or sides.</td>
</tr>
</tbody>
</table>


**Vigor**

Integer: Visual assessment of the vigor class of the tree’s crown from 1-5.

<table>
<thead>
<tr>
<th>Vigor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Healthy, no major branch mortality; less than 10% branch or twig/foliage mortality or foliage discoloration.</td>
</tr>
<tr>
<td>2</td>
<td>Light decline; branch mortality, twig dieback, or foliage discoloration present in 10-25% of the crown.</td>
</tr>
<tr>
<td>3</td>
<td>Moderate decline; branch mortality, twig dieback, or foliage discoloration present in 26-50% of the crown.</td>
</tr>
<tr>
<td>4</td>
<td>Severe decline; branch mortality, twig dieback, or foliage discoloration present in more than 50% of the crown.</td>
</tr>
<tr>
<td>5</td>
<td>Dead</td>
</tr>
</tbody>
</table>


**Dieback**

Integer: Visual assessment of the proportion of the tree’s crown with dieback. Dieback begins at branch terminal and progresses in- and downward. To be considered dieback, the branch must be ≤1” diameter at the point of attachment to another branch or bole. Branch mortality at the base of the crown and large, dead branches without fine branches present are excluded from the assessment. Crown dieback are rated in 5% classes following the table below.

<table>
<thead>
<tr>
<th>Class</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>1-5</td>
</tr>
</tbody>
</table>

Source: USDA Forest Service Forest Inventory and Analysis

**InjuryStatus**
Text: Indicates if tree has visible stem injury. Options are Present or Absent.

**Latitude**
Decimal: Tree location latitude, in the units defined by the spatial reference system (see “Projection” field description), often decimal degrees.

**Longitude**
Decimal: Tree location longitude, in the units defined by the spatial reference system (see “Projection” field description), often decimal degrees. *Projection*
Spatial reference system for the tree location coordinates. Typical coordinate projections are EPSG:4326 (WGS84) and EPSG:2953 (NAD83), with the former being common on hand-held GPS devices. For other projections, see http://spatialreference.org.

**TreeTagNumber**
Text: Alphanumeric text string of the tree tag number; can be blank if it does not differ from TreeID.

**Notes**
Text: Any additional information about the individual tree.

**Increment Core Data**

**Project**
Text: Alphanumeric text string to uniquely identify the project.
PlotID
Text: Alphanumeric text string to uniquely identify the plot within the project.

TreeID
Text: Alphanumeric text string to uniquely identify the tree within the plot.

Species
Text: Species code as recorded in the data. This should match to a definition in the taxonomic standard defined for the project, such as the USDA Plants Database.

DBH
Decimal: Diameter at breast height, typically 4.5 ft/1.37 m above ground.

DBH_Units
Decimal: Units of the diameter measurement, typically inches, millimeters, or centimeters.

Increment_Units
Text: Units of the annual increment measurement, typically inches, millimeters, or centimeters.

CoreID
Text: Alphanumeric text string to uniquely identify the core within the plot. Typically, this is TreeID with A or B to designate different cores from the same tree.

MeasurementMethod
Text: Method used to measure tree core. Options are: measuring platform, hand lens and graticule, on-screen measuring, or visual estimate.

RingCount
Integer: The total number of rings measured before correction.

AverageRingWidth
Decimal: Mean width of all rings in the core, reported in units given in Increment_Units field.

BarkPresence
Text: Indicates if bark was present on core. Options are Present or Absent.

BarkWidth
Decimal: Width of the bark on core if present, reported in units given in Increment_Units field.

PithPresence
Text: Indicates if the pith of the tree was present in the core. Options are Present or Absent.

CorrectedYears
Integer: The total number of rings after correction. If there was no correction, CorrectedYears will be the same as RingCount.

EstimatedYears
Integer: The estimated total number of years of tree core, based on presence of pith, or if pith is not present, by using a ring estimator.

Analyst
Text: Name of person who measured and crossdated the core (can include multiple names if applicable).

Dendrochronologist
Text: **Lead researcher of the project and/or resulting manuscript; or Principal Investigator.**