

## ***dentata*Base User Guide, V1.1**

### **Glossary of Terms**

Breadcrumbs – Also called a “breadcrumb trail”, this is a tool that aids in **user** navigation of a website or on-line application. The “crumbs” help the **user** keep track of their location within the application and are displayed in our database in the white bar just below the red navigation header.

Bred Tree – A tree produced from either an uncontrolled or a controlled **cross** that has been planted.

Cascade – In the TACF *dentata*Base security model, a **role** may cascade for a given **entity**, meaning that the same **privileges** given to that **entity** will also apply to all lower **entities** as defined by the database **hierarchy**.

Chapter Status – The activity level of the chapter – Active, Inactive, Provisional or Contact. Active is for chapters currently in operation. Inactive is for chapters previously recognized by TACF but no longer operating. Provisional is for chapters designated as provisional by TACF. Contact is a place holder for **entities** participating in TACF plantings that cannot be considered chapters.

Classification (tree) – The species or other similar category, i.e. BC1, F1, etc., of a **wild tree** in the *dentata*Base. The classification **entity** is used to categorize only **wild trees**, not **bred trees**. **Bred trees** are categorized by their **cross** type. Accepted **cross** type values TBD.

Cross - A set of progeny resulting from the crossing of two trees. A cross is identified by the two parents used to make it. The same cross can be made in more than one year; those are indexed separately and the database uses the combination of the two parents and year to differentiate each cross as unique. In the name of a cross, the mother (female flower) is listed first followed by the father (pollen) – female x male. In controlled crosses, the male parent is known, in uncontrolled crosses, the male parent is unknown and usually designated "OP" for "open pollination."

CSV – This stands for “comma-separated value” and is a file format that stores tabular data in plain-text form. This file type is the format by which bulk data are imported into or exported from the *dentata*Base. There are several places where the Database will create and export a CSV file into which the **user** will enter data and then upload the file

back into the database. Make sure when saving files for upload that they are saved in the .csv format. Otherwise, the database will not be able to process them.

Decimal Degrees (DD) –A format for recording the **latitude** and **longitude** of geographic coordinates as decimal fractions. This format is commonly used by web mapping applications such as Google Maps, and available on GPS devices. Decimal degrees are an alternative to using degrees, minutes, and seconds (DMS). For our locations in North American, positive **latitudes** and negative **longitudes** should be used for proper mapping. **Latitude** and **longitude** are usually expressed in that sequence, **latitude** before **longitude**, which is how they are displayed in the *dentataBase*.

Detailed map table – This table shows all trees planted in an **Orchard**, **Plot** or **Planting**, along with the option to display attribute and observation data of interest. The detailed map table is designed to show data associated with **plot spaces** and the trees that occupy those **spaces**.

Dead – A tree may be marked dead any time it is observed as such. Chestnut trees commonly re-sprout so it is possible to change the **observation** to “alive” at any time as well. To mark a tree dead and re-use the planting **space**, it must be marked dead and removed. Only do this when the tree is truly gone from the **space**. Resurrecting a tree once it has been removed is not something even System Administrators currently have the ability to do.

Entity – In data modeling, an object about which the **user** needs to track data that can be classified and that has stated relationships to other entities. Examples of entities in our database are Parcel, People, **Roles**, Trees, etc., etc. *See data model in Appendix A for an example of how our entities relate to one another.*

GPA/MOU Status – Indication of whether a Germplasm Agreement (GPA) or Memorandum of Understanding (MOU) is on-file for a Parcel or landowner. Use “None”, “On-file” for a signed GPA and “MOU” if an MOU exists for the Parcel.

Hierarchy – Certain elements of the *dentataBase* follow a ranked arrangement. This allows for **permissions** and other elements to **cascade** and/or be dependent on higher ranked items. For example, our **planting** hierarchy is ranked based on geographic size, in order from largest to smallest: Region -> Chapter -> Parcel -> Orchard -> Plot -> Planting -> Space. *For a visual representation of this hierarchy, please see the data model in Appendix A.*

Hyperlink – Hyperlinks are imbedded links that aid in the navigation of the *dentata*Base. Any available hyperlinks are displayed as underlined blue text.

Latitude (Lat) – The geographic coordinate that defines the north-south position of a point on the Earth’s surface. Please enter Latitude in **decimal degrees (DD)**, the format offered by Google Maps and most GPS devices.

Line – Meadowview line codes are named for the American parents of various B2s made from **crosses** with 'Graves,' 'Clapper' or other sources of blight resistance. Genetic diversity is increased when each chapter makes **crosses** of Meadowview lines onto local American chestnut trees.

Longitude (Long) - The geographic coordinate that defines the east-west position of a point on the Earth’s surface. Please enter Longitude in **decimal degrees (DD)**, the format offered by Google Maps and most GPS devices. (Note: longitude should be a negative number for North American locations).

Nonexistent – This **space status** refers to any **space** within a **plot** map that does not actually exist as part of the planting area on the ground. In contrast, an **unplantable** space is one that might become available for planting someday. Because the *dentata*Base only accepts rectangular **plots**, nonexistent spaces are part of the rectangular **plot** grid but not part of the **plot** in reality. For instance, a rectangular **plot** might spill over onto a neighbor's property; any such spaces in that **plot** would be designated as nonexistent. Nonexistent spaces are displayed with an “n” and grey color in the **plot** map.

Observation – An observation can be made on several **entities** in the database. When assigning a **trait**, one notes the **entity** or **entities** to which the **trait** applies. A single observation is made unique by the combination of the **trait** of interest, the **value** of the observation for that **trait**, the date on which the observation was taken and the **entity**. This allows multiple observations for the same **trait** on an **entity** to be taken at different times. For instance, the height of a tree might be measured in two separate years.

Orchard – An orchard is an intentional **planting** of chestnut trees with a common management or experimental objective that is contained within a contiguous area. There can be multiple orchards within one parcel. Orchards may have multiple **plantings** over several years, but must meet the above definition.

Owner – The person on whose land a **wild tree** is growing or the owner of a **parcel** on which an **orchard** is located. That person must be entered into the *People* tab of the system to be selected, but they do not have to have an account established. The owner may or may not be the same as the **submitter** and/or **steward**.

Pedigree – Refers to all of the parents used in any **cross'** lineage.

Permissions/Privileges – The type of access a **user** has to the *dentataBase*. A **user** may be assigned either **read** or **write access** to one or more **entities** in the Database based on their given **role**.

Plantable – This **space status** refers to any space within a **plot** that could have a tree planted in it. Plantable spaces are displayed with a lower case “p” and light green color in the **Plot** map. Plantable spaces occupied by a live tree are displayed with an upper case “T” in a dark green color, while plantable spaces occupied by a dead tree are displayed with a lower case “d” and a gold color. If the dead tree is removed, the space reverts to the plantable status.

Planting – A planting is the intersection between spaces, trees and time. Plantings are used so that replants and multi-year establishment can be properly tracked.

Planting Stage – As a **planting** is designed and implemented it goes through several stages. “New” has been created, “Designed” is saved but not yet ready to execute, “Committed” is executed but may still be rolled back and “Cemented” is a “Committed” **planting** that has **observations** associated with the trees. A “Cemented” **planting** may not be rolled back.

Planting Type – Classification of the type of **planting**. Please only use one of these options (this eventually will be a drop-down selection) and if you have questions contact your Regional Science Coordinator.

- Breeding Orchard
- Seed Orchard
- Ceremonial
- Demonstration
- Site Test
- American
- Transgenic
- CMS

- Progeny Test – inoc
- Progeny Test
- Restoration Planting
- Phytophthora Test
- Silviculture Test
- Research.

Plot – A plot is the physical layout of the spaces you will plant. The *dentata*Base only accommodates plots laid-out on a grid. There are several options for customization that should be able to accommodate any layout desired. For many TACF breeding and American germplasm conservation **orchards**, there will be a 1:1:1 relationship between Parcel, **Orchard** and Plot. In contrast, seed **orchards** are partitioned into multiple plots, usually with one plot per breeding **line**.

Plot Map – The plot map shows the layout, **space label** and **space status** of all **spaces** in a **plot**. For additional data associated with the **plot spaces** or trees occupying those **spaces** use the **detailed map table**.

Production Server – This is the server/website on which the *dentata*Base resides with TACF’s real data. Once a **user** has practiced on the **testing server** and feels comfortable with how data are entered and structured in the *dentata*Base, they will be given an account on the production server. Generally, **permissions** for the production server will be reduced from those for the **testing server** to only those **entities** to which the **user** needs access. The current address of the production server is: <http://acf.herokuapp.com>

Read access – **Users** of the *dentata*Base may have read or **write privileges** for one or more **entities**. Read access only gives a **user** the capacity to see the data for that **entity**. **Users** cannot edit, or **write** to, **entities** for which they have only read **privileges** assigned.

Region – The highest level of geographical classification, the Region includes the states or Chapters that are served by a Regional Science Coordinator (RSC). Meadowview is also classified as its own Region (and Chapter). In most cases, **users** will only have access to the Region their chapter belongs to.

In addition, an “At-large” Region exists to associate any data that cannot be verified as belonging to a specific Region. The most common use of the “At-large” Region is for trees that have no record of origin. The “At-large” Region should be used sparingly.

Role – In the *dentataBase*, a role defines the access **privileges** a **user** has to the system.

Currently, roles may be assigned for one or more of the following **entities**: System, **Regions**, Chapters, Parcels and **Orchards**. Additional **entities** may be assigned in the future. Given the **hierarchy** of the *dentataBase*, roles may also **cascade**, meaning that the same **privileges** of a given **entity** will also apply to all lower **entities**. The choice of whether or not to **cascade** a role is optional. If you have access, you can find out more about a given role in the system by clicking on the *Roles* tab and exploring from there.

In addition to being assigned to a given **entity**, a role also defines whether a **user** will have read or write capabilities for that **entity**. Only **users** with System Administrative **privileges** may create roles and assign **users** to those roles. **Users** who would like additional **privileges** should make such a request to their local Regional Science Coordinator.

Security model – A database security model defines the level of access a **user** of the *dentataBase* has to the system. **Users** may have access to one or more **entities** and may have either read or write access to those **entities**. In order to access the *dentataBase*, all **users** must be invited by a System Administrator and subsequently create an account. In the future, the system may allow a person to create their own **user** account without being invited.

Seedlot – Used to identify a **cross** made in a given year (must be unique). Various schemes can be used to name seedlots. One common one is: Chapter abbreviation + **cross** type code + year **cross** was made + assigned number for each **cross** made in a particular year (i.e. KYB30602 = a KY chapter B3, made in 2006, seedlot #2 out of six **crosses** made in 2006 for KY).

Shortcode (Tree) – Tree Shortcode is used to identify a tree (wild or planted). It must be unique by Chapter and should follow any naming convention specific to the Chapter. Often there will be a different convention for **orchard** trees and **wild trees**. For **orchard** trees, the shortcode is often the **orchard shortcode** plus the **space label** where the tree is planted. Some chapters insert a hyphen between the **orchard shortcode** and the **space label**. For **wild trees**, the shortcode is commonly a 2-letter state abbreviation, followed by a hyphen, and then a short location abbreviation and a 3-digit sequential number.

Shortcode (**Orchard**) – **Orchard** Shortcode must be unique by Chapter and should follow any naming convention specific to the Chapter. Commonly, this will be the 2-letter state

abbreviation, followed by a hyphen and then a short site abbreviation and the two-digit year of initial planting. For example, “VT-SC13” = Vermont, Lake St. Catherine, established 2013. If you have questions, please contact your Regional Science Coordinator.

**Shortcode (Plot) – Plot** Shortcode must be unique by Chapter and should follow any naming convention specific to the Chapter. If you have questions, please contact your Regional Science Coordinator.

In cases where the **orchard** has only one **plot**, this may be the same as the **orchard shortcode** (see above). For a seed **orchard**, one suggestion is to use a 2 letter abbreviation for the site (and the block number if there is more than one on the site), followed by a hyphen and the **plot** number. For example, “BR1-2” = Bunker Road Preserve, Block1, Plot 2.

**Sort caret** – A caret, or small inverted V-shaped symbol, is shown in the column header of any tables with sorting capability. It will point “up” when the list is in A-Z order and “down” when the list is in Z-A order.

**Space** – A space is the physical place within a **plot** that a planted tree may occupy. The *dentata*Base only accommodates plots laid-out on a grid; however there are several options for customization of **space statuses** that should be able to accommodate any real-world layout desired. Spaces can be identified by **space labels**.

**Space label** – A space label uniquely identifies a space within a **plot**, but not between **plots**. Space labels can be sequential numbers or combinations of alphanumeric characters of the **user's** choice.

**Space Status** – All spaces within a plot are assigned a status of **plantable**, **unplantable** and **nonexistent**. Space status is assigned at the time of **plot** creation and best viewed in the **plot map**.

**Steward** – The person who is in charge of monitoring the health, flowering status, etc. of a **wild tree** or **orchard**. That person must be entered into the *People* tab of the system to be selected, but they do not have to have an account established. The steward may or may not be the same as the **submitter** and/or **owner**.

Submitted by – The person who submitted a tree for recording to TACF. That person must be entered into the *People* tab of the system to be selected, but they do not have to have an account established. The submitter may or may not be the same as the **steward** and/or **owner**.

Testing Server – Also called the staging server, this is where **users** and programmers try out new functionality. It also offers system **users** a place to practice and test all elements of the *dentataBase*. The testing server holds a mixture of both real and fake data. **Users** should not take pains to ensure accuracy of data entered into the server, but rather use the testing server as an opportunity to ensure they understand how all elements of the system work. In general, **users** will be given higher **privileges** in the testing server than in the **production server**. The current address of the testing server is:  
<http://dentatabase-staging.herokuapp.com>

Text-only values – All data entry fields in the *dentataBase* will accept any text characters (alphabetic or numeral). There are no controls on these entries and they will be saved exactly as they are entered. For example, a height of “B26 #Santa” or a **cross shortcode** of “I don’t know” would be accepted by the system. We hope to provide finer control over the content of data fields in future versions for the *dentataBase*.

Trait – A trait is a characteristic of an **entity** in the *dentataBase* about which, on a given date, we gather some **value** to create an observation. Traits may be assigned to the following **entities**: **Orchards, Plots, Plantings, Spaces, Crosses**, and Trees. In future phases, additional **entities** such as People will be allowed to have traits.

While working in the *dentataBase*, click on the *Traits* tab to discover what traits are available and assigned for a given **entity**. To find out how the trait should be used, and what **values** should be assigned to the trait, click on the **hyperlink** for that trait.

Only **users** with System Administrative **privileges** may add new traits. A **user** without System Administrative **privileges** may request that a new trait be added by contacting a TACF Science Staff member, preferably their local Regional Science Coordinator.

Unplantable - This **space status** refers to any space within a **plot** that could not have a tree planted in it. Unplantable spaces are within the real-world confines of the **plot** space but can not be planted for one reason or another (obstruction like a rock or ledge, wet spot, etc.). If the rock were removed, for instance, an unplantable space might be



rendered **plantable**, unlike a **nonexistent** space. Unplantable spaces are displayed with a “u” and pink color in the **plot** map.

User – The term applied to a person with an account in the system. Anyone wishing to access the *dentata*Base must be invited and subsequently create a password-protected user account.

Value – One of three elements that create a unique observation. Currently, all values **are TEXT ONLY**. This means that, for example, you can enter a value of “Santa Claus” as the height of a tree. We are working very hard to raise funds for developing better controls on these values, but it will take until at least mid-2014, if not longer, before these controls are in place. Please take special care to ensure your data are correct before uploading into the system.

Wild Tree – A wild tree is defined as any tree for which we do not have previous **crossing** information. The tree may have actually been planted, but we do not have the information regarding the **planting** and choose instead to treat it as an individual, non-planted tree. All species of chestnut can be handled under wild trees, not just American chestnuts.

Write access – **Users** of the *dentata*Base may have **read** or write **privileges** for one or more **entities**. Write access gives a **user** the capacity to both see and edit **entities** for which they have been assigned write **privileges**.