

# **Tree DB –Chestnut Database**

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**The American Chestnut Foundation**

**Project Charter**

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# 1. Executive Summary

## ***Overview***

The mission of The American Chestnut Foundation (TACF) is to restore the American chestnut tree to its original range. As part of that process, TACF seeks to incorporate as much genetic diversity as possible into the American chestnut. As a result, the breeding work of TACF extends throughout the original range of the tree species. Officially-termed the “Regional Adaptability Breeding Program”, volunteers, organized within state chapters along the original range, work with hybrid germplasm from TACF’s main research farm to further advance breeding generations through controlled pollination and chestnut orchard management.

## ***Problem Statement***

Currently, data collected from all breeding work are housed by administrators within each chapter, or at various TACF staffing locations. As a result, there is divergence in data management systems within each chapter and throughout TACF. Such a disjunct system results in the inability to fully utilize the potential of the collected data: administrators have not collected the same data in the same fashion, and data on all trees from similar genetic backgrounds cannot be analyzed easily, if at all. Queries of data relating to all individuals within a certain generation could reveal important trends, especially those concerning regional differences. However, with the current distributed collection and storage of the data, these important comparisons are not possible.

## ***Proposed Solution***

Creating a centralized system of data storage and analysis – as provided by today’s web-based information systems - would allow a more systemized and consistent approach to managing the data. It will allow breeding efforts to be better analyzed and better coordinated. It will facilitate identification of data and process errors and omissions – and lead to normalization of data collection and evaluation. In addition, such a system will impart the ability to track the pedigree of regional TACF germplasm, a process that will be vital to the eventual certification and distribution of our blight-resistant seed. The realization of a single database system, one which works to quantify and assure the regional background and blight resistance of our genetic material, will be the most efficient way to provide the most suitable and best-adapted blight-resistant American chestnut material to landowners throughout the original range of the American chestnut.

## ***Project Management Approach***

Previous attempts to complete an on-line version of such a database version have not come to completion, due in large part because the scope of the project was not clearly understood by the developer from the outset. To avoid future problems such as that, a new approach, one based on Phase Containment, will be undertaken. This project charter initiates the onset of the project.

# 2. Project Goals

The Project Goals identify the high-level goals of the system. All system requirements are expected to map to a project goal. Requirements that do not map to a goal are expected to be outside the scope of the project.

1. **Data Management:** It is expected that this system will maintain all TACF research data from large –scale to detailed for the following collections: wild-trees, observations, pollinations and distribution; orchards, orchard trees, observations; reforestation units; and the people associated with each. All existing, electronic TACF data will be uploaded within the duration of the warranty period with no islands of electronic data remaining or used following the warranty.
2. **Usability:** Highly-usable web-based interface, for all components, allowing for access by TACF's wide network of staff and volunteers.
3. **Web-based:** Ability to manage and manipulate individual records and all reference data through web-based forms interface.
4. **Data Import/Export:** Batch import of data from spreadsheets and delimited files, with validation, including identification of duplicate and incorrect data. Export of data and/or data connectors that allow introspection and analysis of our data with external software tools. All data import/export will be managed through web-based interfaces.
5. **Reporting:** Summary reporting capability for all data managed in such a way that TACF scientists can analyze breeding program status and make future plans.
6. **Software Architecture:** Leverages best practices in architectural patterns using software with a large support community, with a preference for open-sourced, scalable platforms, which allows for future upgrade and expendability.
7. **Tiered Access:** A secure, tiered-access infrastructure, with authentication and authorization, to allow for administration and access by the broadest group of constituents.
8. **Operational Support:** A system which, post-development, minimizes operational production costs including both data and system management.
9. **System Design:** System is to be hosted in either shared or dedicated environment with an external service provider.

## 3. Scope

The project scope includes the development and enhancement of all components required to deliver the Trees Database System to meet the goals as defined in this Project Charter. Requirements which do not support the goals listed in this Project Charter are understood to be outside the scope of this project.

## 4. Key Stakeholders

Bryan Burhans, President and CEO, The American Chestnut Foundation (TACF). Bryan, as the authorizing agent, will oversee operations and approve phase completion and final funding of the project.

Bill Adamsen, Director of TACF provides the oversight of the Project Management framework used to manage the project. This includes responsibility for ensuring the schedule and budget are tracked and reported accurately and that deliverables are achieved. In addition he brings technical expertise and experience in the management of interactive and database management projects.

Dr. Fred Hebard, TACF Staff Pathologist brings knowledge of the business rules and algorithms for data structure and manipulation. In addition, his vast practical field experience provides insights into the operational use – import and export of data – and creation of reports.

Dr. Robert Paris, TACF Staff Geneticist is responsible for ensuring the reports meet the needs of the genetics staff and that the system supports any genetics related requirements.

Sara Fitzsimmons, TACF Northern Appalachian Regional Coordinator brings knowledge of the business rules and algorithms for data structure and manipulation. In addition, her vast practical field experience provides insights into the operational use – import and export of data – and creation of reports

Kendra Gurney, TACF New England Regional Coordinator understands the needs of volunteers and is responsible for ensuring requirements related to system use by volunteers are properly articulated and documented.

William White: TACF Research Technician, as the Regional Coordinators above, brings to the project both extensive field and data manipulation experience. William will assist in assuring the business rules are sufficient for proper data input and reporting.

Sarah Spooner, TACF Webmaster: Sarah will work to ensure the tree breeding database and application meet branding requirements and is responsible for delivery of the style-guide. In addition, she serves as an advisor on authentication and authorization to ensure that there is clear communication on use of constituent data.

Betsy Gamber, TACF Membership Coordinator: Betsy will serve as an advisor on authentication and authorization to ensure that there is clear communication on use of constituent data.

Chapter User Volunteers, TBD, Additional users will be required to complete the user acceptance testing to exercise all test conditions and validate functionality. In addition, volunteers will be selected (possibly the same users that participated in the testing) as “Train the Trainers” to assist with future volunteer training.

## 5. Project Organization

### *Organization and Escalation*

With the rapid approach to completing the project, and the small project team, it is imperative that we allow the project management structure to drive the project process. Resolution will be attempted via building consensus, and if that is unsuccessful, through delegation of research to find resolution and build consensus. If consensus does not appear to be likely, the Project Manager will make a decision that seems best suited to meet the project management objectives (scope, cost, time). Wherever possible, deprecated functionality will be moved to future version consideration.

Organization CEO will be considered the ultimate tie-breaker – final decisions can be over-ridden by the CEO.

## Communications

1. Project Manager weekly update to Bryan Burhans. 0.5 – 1 hour phone updates to CEO. In order to complete each phase and move forward, CEO must approve completion of deliverables on a weekly basis.
2. Weekly meeting of Technical Design Team (Team TACF). 1 - 2 hour update every week, starting Tuesday, December 8, 2009. A draft schedule follows, though specific dates each week may change as agreed upon during previous week's conference:
  - a. Tuesday, December 8, 2009
  - b. Tuesday, December 15, 2009
  - c. Tuesday, December 22, 2009
  - d. BREAK
  - e. Tuesday, January 5, 2009
  - f. Tuesday, January 12, 2009
  - g. Tuesday, January 19, 2009
  - h. Tuesday, January 26, 2009
3. Face to Face meeting: From Sunday, January 31 – Tuesday, February 2, the development team will meet in Meadowview, VA, or an alternative location to be determined, to complete all documentation related to the Analyze and Design Phase.
4. Build and Post-Build meetings/Trainings: During the bidding and development team selection process, communications between the design and development team will be negotiated and defined. It is expected that weekly meetings will continue, to at least review and approve progress.
5. Additional meetings: Other meetings may need to be called on an as-needed basis, during different phases of the project.

## 6. Project Roles and Phase Approvers

The project is using a PMI Approved Phase Containment process for project management. Phase containment requires stakeholder approval to complete phase and move to the following phase. For efficiency purposes, an e-mail from the stakeholder will be considered approval. The below table lists the names of the project stakeholders who will be required to participate in Phase End Approval through completing the work determined by their role and participation, and by sending approval that they believe the project is ready to move to the subsequent phase.

Name	Project Role	Phase Approvals				
		Define Phase	Analyze/Design Phase	BID Phase	Build & SIT Phase	User Acceptance
Bryan Burhans	CEO, Project Owner	X	X	X	X	X
Bill Adamsen	Director, PM	X	X	X	X	X
Dr. Fred Hebard	Business Rules, Testing	X	X	X	X	X
Sara Fitzsimmons	Business Rules, Testing	X	X	X	X	X

Dr. Robert Paris	Business Rules	X	X	X	X	X
Kendra Gurney	Business Rules, Testing	X	X	X	X	X
Sarah Spooner	Compliance, Style-guide	X	X	X	X	X
William White	Business Rules, Testing	X	X	X	X	X
Betsy Gamber	Compliance	X	X	X	X	X
Volunteers TBD	Testing	X	X	X	X	X

## 7. Project Constraints and Boundaries

Delay in project schedule may have a great impact on the expected participation of key elements of the project team. In addition, bids to complete the work may impact the ability to move ahead with the project in the intended form.

There are times during any calendar year in which Team TACF members may not be available because of time required to complete field work tasks. This would have an impact on scheduling.

## 8. Initial Project Assumptions & Risks

### *Assumptions*

1. The “business” rules are well defined and known, and can be agreed upon
2. The organizational resources are available and willing to work on the project
3. We can reach consensus on all points related to the project work objects
4. That funding is available to have bidding and build take place in the 2nd Quarter of 2010
5. There is a unified effort to create a single, tree breeding database for TACF as defined by this Project Charter.

### *Risks*

1. Reaching consensus on Project Charter
2. Completion of Work Objects – while extensive work has been completed on two prototypes (Meadowview and Penn State) it is unclear if there is adequate definition
3. Funding – the development costs for the scope are yet unknown. It is unclear whether the organization can allocate (raise) the funds required to complete the project according to the scope as envisioned.
4. Decision making – ability to make changes impacting the scope of the project in a timely fashion.

# 9. List of Deliverables

The following is a list of Work-Objects – many of which are phase dependent – that is, they require delivery and peer review to ensure the phase in which their delivery is required can be signed off as complete. The Team names after each phase denote the leader of each phase. For Team TACF, the stakeholders named above constitute that team. Team Developer will be determined once the bid process is complete.

- 1. Project Management (Team TACF)**
  - 1.1. Project Charter [define phase]
  - 1.2. Work Objects
  - 1.3. Project Plan [analyze through launch phases]
  - 1.4. Change Management Plan [analyze/design phase]
  - 1.5. Issue/Action Log [all phases]
  - 1.6. Communication Plan [all phases]
  - 1.7. Contact List [all phases]
  
- 2. System Rules and Requirements (Team TACF)**
  - 2.1. System Process Flows [analyze/design phase]
  - 2.2. Requirements Document [analyze/design phase]
  
- 3. User Interface and Design (Team TACF)**
  - 3.1. Site Wireframes or Schematics [analyze/design phase]
  - 3.2. Site Map [analyze/design phase]
  - 3.3. Persona [analyze/design phase]
  - 3.4. Use Cases [analyze/design phase]
  - 3.5. Style-guide [analyze/design phase]
  
- 4. Logical & Physical Data Structure (Team TACF)**
  - 4.1. Report Definition and Layout [analyze/design phase]
  - 4.2. Entity Definition and Layout [analyze/design phase]
  - 4.3. Data Process Flows [analyze/design phase]
  - 4.4. Logical Database [analyze/design phase]
  - 4.5. Authorization Model [analyze/design phase]
  - 4.6. Data Element Description [analyze/design phase]
  - 4.7. Entity Type Description [analyze/design phase]
  - 4.8. Relationship Type Description [analyze/design phase]
  - 4.9. Attribute Type Description [analyze/design phase]
  - 4.10. Entity-Relationship Diagram (ERD) [analyze/design phase]
  - 4.11. Database Characteristics Summary [analyze/design phase]
  - 4.12. Index Design Decision [analyze/design phase]
  - 4.13. Recommended Technical Specifications [analyze/design phase]
  
- 5. Technical Design Document (Team Developer)**
  - 5.1. Technical Design [Build]

- 5.2. Module Definition [Build]
- 5.3. Data Access Layer Design [Build]
- 5.4. Source of Data [Build]
- 5.5. Server Type [Build]
- 5.6. Security Roll [Build]

**6. Server Description and Network Design (Team Developer)**

- 6.1. Network Design [Build]

**7. Operations Management (Team TACF)**

- 7.1. Business Continuity Design [analyze/design phase]
- 7.2. Test Data [analyze/design phase]
- 7.3. Test Cases [analyze/design phase]
- 7.4. Test Plan for System Integration [analyze/design phase]
- 7.5. Test Plan for User Acceptance [analyze/design phase]
- 7.6. Training Plan [before UAT]
- 7.7. Physical Data Upload Plan [post-build]

## 10. Cost

There are two cost channels for the project and one for operational costs associated with the project product once launched.

**Staff Costs**

There is a requirement for TACF Staff to allocate resources for assistance with development of the Work Objects associated with the define/design/analyze phases, and for probable participation in the system integration testing and user acceptance testing as well as any project management meetings. These cost fall under salary and benefits and are estimated based on estimated participation. Approximate costs are \$21,500.

Meeting Type	Staff Involved	Staff Hours	Approximate Staff Cost	Travel
Weekly Meetings	7	2 hours x 7 meetings x 7 staff = 98 hours	\$3500	None
Staff Time on Work objects	7	2 hours per week x 7 weeks x 7 staff = 98 hours	\$3500	None

Face-to-Face Conference in Meadowview	6	2 days (8 hours) x 6 staff + (10 hours travel x 5 staff)= 146 hours	\$5000	\$2500
Build, Training, and Post-Build Commitment	5	200 hours (approximate)	\$4000	\$3000
<b>TOTALS</b>			\$16,000	\$5,500

### Development Costs

Costs associated with the development are based on prior experience developing like projects and estimates based on standardized work/effort algorithms and vendor feedback. These are high-level estimates with a high contingency. The contingency will reduce to near zero as we move toward signing a firm fixed price contract for delivery of an application that meets the defined specifications coming out of the Analyze/Design Phase. Like most projects, we have defined a change control process to be implemented post contract. Changes to the delivery package post contract will be managed through change control, and will represent the contingency for the development costs.

- a. A low estimate to complete the first version of TreesDB software , one which leverages prior work, puts total cost at approximately \$15,000 in vendor costs.
- b. A high estimate to complete the first version of TreesDB software, one which begins programming from the beginning, puts a total cost at approximately \$50,000 in vendor costs.

### Hosting Costs

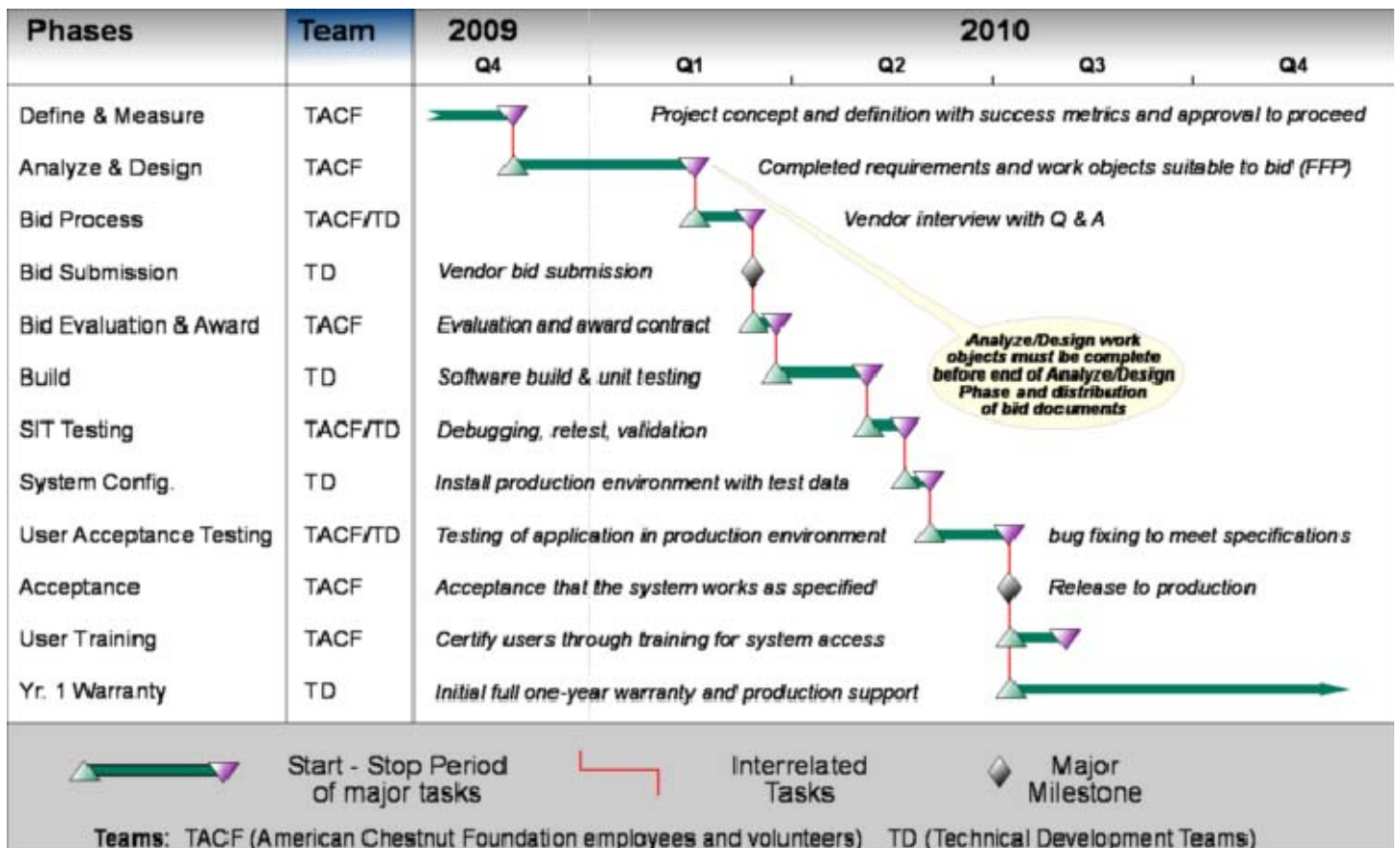
Traditionally, the definition of a project is an engagement with a clearly defined beginning and end. While we have included the upload of existing data as a measureable goal of the project, it is in actuality an operational task and outside the bounds of the project itself. However project goal number eight states clearly that a goal of the project is to produce a system which minimizes operational costs going forward so it is imperative to state the operational costs year one. Estimated operational costs are \$200 per year.

## 11. Schedule

Only the scheduling of the first two elements below are documented with any certainty. The scheduling of the remaining elements is highly dependent on the developer and the path of development. After completion of the analyze and design phase, more definitive estimates will be provided and this document will be updated. During negotiations with a developer, estimates of work completion will further be refined.

1. Define and Measure: Completion = December 2009
2. Analyze and Design: Completion = February 2010

3. Bidding: Completion = March 2010
4. Build: Completion = May 2010
5. Systems Integration Testing (SIT): Completion = June 2010
6. System Configuration: Completion = July 2010
7. User Acceptance Testing (UAT): Completion = August 2010
8. Acceptance: Completion = August 2010
9. User Training: Completion = August 2010
10. Year 1 Warranty Support: Completion = August 2011



## 12. Integrated Change Control

During the Build phase, Team TACF will evaluate the change requirement during a weekly call and meeting. The change request will be submitted in writing to the Project Manager. The Project Manager will submit the change request to vendor for pricing and schedule impact. Once these have been determined, a meeting will be scheduled to include the entire group of project stakeholder to review and approve the change

Changes to scope are not expected to be approved for this phase of the project.

## 13. Success Criteria

1. At close of warranty period, 100% of electronic data have been uploaded to the system and are fully functioning with the analytical tools in the product.
2. In addition to historical data input during the upload, each Chapter will have at least some of their current pollination and orchard data entered into the project and will have a set of trained delegates working to ensure that their data are up to date.
3. The organization has been able to leverage project documentation to seek and gain funding from a variety of funding sources to pay for development costs.
4. Once planning is complete, and contract awarded, the project will be managed to within 10% designed cost contingency. In other words, the contract, plus net change requests will not exceed 110% of the bid award amount.