

An Overview of the Trees in The Natomas Basin Conservancy Lands

Sacramento Tree Foundation

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INTRODUCTION

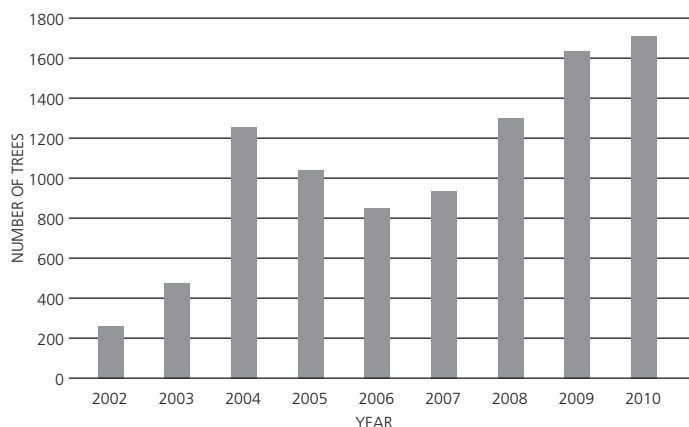
Since 2002, the Natomas Basin Conservancy (TNBC) has partnered with the Sacramento Tree Foundation (Tree Foundation) to locate, map and regularly assess the condition of tree resources in the Natomas Basin properties for the City of Sacramento and Sutter County.

In the first year of the project a baseline assessment of current tree resources mapped 630 distinct waypoints including 240 trees with a diameter-at-breast-height (DBH) measurement of six inches or greater. Each original tree is revisited annually to gather monitoring data. New tree plantings and naturally regenerated trees are added to the data set annually. As of fall 2010, the data set includes 2,696 discrete waypoints representing three categories: individual trees, distinct groves, and newly planted vegetation groups.

New vegetation groups always include seedlings and saplings with measurements smaller than 6" DBH. Of these waypoints, 1,666 of them are identified as individual trees. This represents a 6-fold increase in the number of trees under the management of TNBC and monitored by the Tree Foundation over the past eight years (See chart below).

Analysis of the data set allows us to track growth patterns, monitor survival rates, and identify tree resource trends on many levels. This information is used to determine ongoing management actions and support the long-term sustainability goals of the Natomas Basin Conservancy.

Total Trees in the Natomas Basin Conservancy



TREE RESOURCES

Trees on TNBC lands fall into two categories:

- Members of the riparian forest community and native to California's Central Valley
- Remnant non-native trees established through prior agricultural and residential use of TNBC lands.

Non-native trees that have been monitored for this project include a variety of fruit and nut trees, eucalyptus, mulberry, London plane and similar tree species commonly planted throughout the valley to provide shade, firewood and other benefits. In unmanaged settings, many of these tree species have a tendency to be weedy and invasive and provide limited benefits to native wildlife. A few trees identified on TNBC lands, such as tree-of-heaven and edible fig, are considered invasive in natural settings. TNBC maintenance staff spends a significant amount of time controlling and eliminating non-native invasive weeds.

Native trees within the Natomas Basin include:

- box elder (*Acer negundo*)
- California black walnut (*Juglans hindsii*)
- Fremont cottonwood (*Populus fremontii*)
- Oregon ash (*Fraxinus latifolia*)
- valley oak (*Quercus lobata*)
- willow – several species (*Salix spp.*)

While some of these trees naturally regenerate on TNBC lands, other species such as the valley oak and Oregon ash frequently need to be planted to ensure their survival within a restored riparian forest.

FOREST RESTORATION

Since 2002, new properties have been added to the Conservancy and significant increases in the numbers of trees on TNBC lands have been documented. The first year of the project, three properties were documented including 1,050 acres and 240 trees. As of 2010, 12 property groups encompassing over 2,300 acres were surveyed and more than 1,600 individual trees were located and inspected.

Every TNBC property assessed shows tree canopy increasing over time, with the greatest increases being found on properties experiencing active restoration by way of tree planting and land stewardship activities. Tree canopy is calculated based on the number of and size of individual trees.

Native vs. Non-Native Trees 2002



Native vs. Non-Native Trees 2010



From 2002 to 2010, significant changes can be seen in the ratio of native vs. non-native tree species found on TNBC properties (see charts below). Certain invasive tree species identified in the early years of the study, such as tree-of-heaven (*Ailanthus altissima*), were successfully eliminated on TNBC properties by maintenance crews.

ONGOING CHALLENGES

Overall, TNBC tree resources show positive growth and progress toward long-term establishment with the majority of the newly planted trees exhibiting gains in size classes and health ratings. Though the trees on TNBC properties are well cared for, threats to tree health have developed and changed over the nine years for which data has been collected. These threats can be divided into two categories, natural and human-caused.

Significant rodent and small herbivore damage to young trees was first noted in the 2006 tree assessment; however, it has not been significant in the following years. This coincided with a region-wide season of tree and plant losses due to meadow mouse (*Microtus californicus*) overpopulation. Other Sacramento area restoration practitioners noted similar experiences during the 2006 growing season.

The most significant natural threat to TNBC trees, specifically on the BKS property, is the loss of large trees to beavers. Beaver activity was first noted on this TNBC property in 2007 and continued to increase for the next two seasons. Tree protection strategies such as the use of caging materials have limited the loss of large trees though some damage continues on the TNBC BKS property.

In 2007 and 2009, some damage to TNBC trees was attributed to herbicide drift, especially in areas adjacent to active agricultural use or on property edges. Though tree death due to herbicides was not noted, ongoing stress from herbicide damage can limit the survival of native trees in the landscape.

The 2010 monitoring season recorded new losses of TNBC trees due to construction on the Natomas Levee Project. This levee project has limited our ability to access certain properties and gather data on tree resources. The full potential impact of the levee project on TNBC trees is unclear.

LONG-TERM SUSTAINABILITY

The monitoring data demonstrates the positive changes gained through tree planting and active restoration of this important natural resource. This data is vital to determining the long term stewardship actions of these properties.

The data sets collected and maintained by the Sacramento Tree Foundation are unique in that all nine years of the collection and analysis has been conducted by a single individual, Ms. Joni Ramirez. This allows for a high-level of consistency as well as a deeper understanding of how the landscapes and tree resources have changed over time.

Overall, the TNBC data demonstrate how organizational partnership, consistent land stewardship, and adaptive management produce positive results in the conservation of critically important lands such as the wetlands and riparian forests of the Natomas Basin.

ACKNOWLEDGEMENTS & CONTACT INFORMATION

This report was prepared by Joni Ramirez and Zarah Wyly of the Sacramento Tree Foundation. For further information about this report, please contact Joni at (916) 924-8733 ext. 116 or email her at joni@sactree.com. For further information about the Tree Foundation, please visit www.sactree.com.