

# PRESIDIO TRUST

## FACT SHEET | Presidio Trust's Reforestation Program

It feels as though the Presidio's eucalyptus, pine, cypress, and redwood trees have always been there. Yet, the first human inhabitants of the land at the Golden Gate encountered a very different landscape – windswept dunes, serpentine scrub, and coastal marshes punctuated by native oaks and willows concentrated along Presidio streams and ponds.

### **Creating the Presidio Forest**

Visitors who enjoy the fresh air, solitude, and recreation the Presidio's urban forest provides have U.S. Army Major William A. Jones to thank. In March 1883, Jones proposed an ambitious tree planting program in his *Plan for the Cultivation of Trees Upon the Presidio Reservation* that would dramatically alter the military post's landscape. An Army staff engineer experienced in landscape engineering and forestry, Jones was inspired by the country's new urban parks including San Francisco's Golden Gate Park. His goal was to create wind barriers in the Presidio's notoriously sandy dune environment to set the Presidio apart visually from the surrounding city, and make the post seem larger than it actually was.

Jones was transferred before his plan was put into action in 1886. Six years later, more than 300,000 trees had been planted with Army labor, with help from citizens and Scout troops. As the forest grew to nearly 420 acres by the early 1900s, Jones and others – including a forester from the newly formed U.S. Forest Service – recommended thinning as a long-term maintenance strategy, "keeping the distance between trees about equal to their height."

Despite many initiatives and plans by various Army officers, the Presidio forest continued to grow without an overall design or reduction in density. Major Jones' original plan, to accentuate the topography of the Presidio, had also been blurred as the forest expanded into valleys and view areas Jones had intended to remain open. The forest had replaced the dunes as the dominant feature of the landscape.

### **From Military Post to National Park Site**

In 1962, the U.S. government declared the Presidio a National Historic Landmark District, with the forest included as the single largest contributing feature. Recognizing that the forest was failing due to lack of active management, in 1981 the Army sought the advice of local experts, including Joe McBride, Professor of Landscape Architecture & Environmental Planning at U.C. Berkeley, and environmental consultants Jones & Stokes Associates, Inc. The resulting management plan was shelved due to the impending closure of the Presidio as an Army post.

When the Army finally departed in 1994, the Presidio was transferred to the National Park Service as part of the Golden Gate National Recreation Area. The National Park Service engaged the local community in a planning process for the park that resulted in the General Management Plan Amendment (1994) for the Presidio. The General Management Plan

Amendment recognized the forest as a significant cultural landscape feature, not only of the Presidio but of San Francisco as a whole, and that it was aging and in need of rehabilitation.

Again, Jones & Stokes was engaged to perform a tree survey. They determined that due to the advanced age of most trees, breakage, tree death, and storm damage could substantially reduce the extent of the forest over the next 20 years. Ultimately, the revitalization of the forest would be in the hands of the Presidio Trust (Presidio Trust Act, 1996), the federal agency that took over management of the noncoastal areas of the Presidio in 1998.

### **Planning for a Healthy Forest**

In 2001, the Presidio Trust and the National Park Service published the *Presidio Vegetation Management Plan*, a blueprint for caring for the park's open spaces, including its natural areas, historic gardens and parade grounds, and the forest planted by the U.S. Army.

The *Vegetation Management Plan* calls for restoring the historic forest within its historical boundaries, managing it as part of the cultural landscape, and maintaining the visual quality of the Presidio. The 2009 *Historic Forest Character Study* is also a guiding document.

To accomplish this, the Trust recruited an experienced forester, Peter Ehrlich, from Golden Gate Park. Ehrlich and Michael Boland, then Director of Planning and now Chief Park Officer, piloted a forestry project in 2002, and fully launched the reforestation program in 2003. to gradually transition the aging forest into new stands of young, healthy trees to diversify the forest's age and address the density of the trees.

Because the forest had never been actively managed, the Trust began by experimenting with pilot projects to understand the unique qualities of the Presidio forest. Pilots looked at ways to increase species diversity, develop a multi-layer forest structure, diversify the understory, and safely remove hazardous or dead trees – all while balancing the compliance requirements of the National Environmental Policy Act, the Endangered Species Act, and the National Historic Preservation Act.

### **A Record of Success**

The Presidio's historic forest includes 75,000 trees across 306 acres. Five species make up 90 percent of the forest: Monterey cypress, Monterey pine, blue gum eucalyptus, blackwood acacia, and coast redwood. Each year the forestry team removes and replants two to three acres of historic forest. To date, the Trust has reforested 53 acres with more than 9,000 young trees. The young trees are raised at the Presidio Nursery from seeds collected in the Presidio. Such reforestation efforts have contributed to an uptick in bird diversity in the Presidio, a clear indication of a sustainable ecosystem.

Regular tree risk assessments determine which trees pose the highest risk so the Trust can proactively remove trees based on their risk score. The surveys also help determine where to focus reforestation efforts that year. In areas slated for reforestation, the removal of aged and declining trees is followed by the application of well-cured compost to improve water-holding capacity in the Presidio's sandy soils.

The use of “bioswales” captures storm water run-off for filtering and usage, and drip irrigation systems are used to help establish the new seedlings. Reforested sites are actively maintained for five to eight years and thinned periodically to achieve a density of approximately 50 trees per acre when mature.

### **The Future of the Presidio Forest**

Recent indicators of climate change such as less water and increased weather events necessitate a reconsideration of urban forest management. One strategy involves the implementation of a diversified tree species composition within the park. By transitioning from monocultures to a varied selection of trees, the forest's resilience to pests, diseases, and drought is enhanced. Additionally, i foresters are collaborating with plant ecologists from the Natural Resources division to plant native understory vegetation when replanting trees. The result is greater biodiversity of plants, insects, and animals, which leads to a greater survival success.

In 2019, the Trust completed a fire analysis and management study. The analysis, using fire modeling software and climate predictions found at Cal-Adapt.org, indicated that there is a very low risk of wildfire in the Presidio due to the park's low annual average temperatures and high humidity. The fire ecology and climate of our specific location are not predicted to change drastically in the near future, keeping wildfire risk low.

### **Getting Involved: Volunteer Forest Stewards**

The public can play a role in caring for the Presidio forest through the Forest Stewards program. Volunteers help with planting, weeding, mulching, and other stewardship work. From October 2019 through May 2023, 502 individual volunteers contributed 5,347 hours caring for young trees in our reforestation sites.

### **Fast Facts**

- The 1,491-acre Presidio includes 991 acres of open space.
- The historic Presidio forest, planted by the U.S. Army beginning in 1886 based on a plan by Major William A. Jones, is 306-acres and comprised of approximately 75,000 trees.
- Five species make up 90 percent of the Presidio forest: Monterey cypress, Monterey pine, blue gum eucalyptus, blackwood acacia, and coast redwood.
- Management of the historic forest is guided by the 2001 *Presidio Vegetation Management Plan* and the 2009 *Historic Forest Character Study*.
- From 2003 to 2023, the Presidio Trust's forestry crew has planted close to 9,000 trees in 53 acres.
- The Presidio Trust forestry team includes a head forester, six arborists, and two forest restoration technicians.
- The typical life span of Monterey pine is 80 to 100 years, while the life span of Monterey cypress ranges from 100 to 150 years or more. Although subject to large-limb breakage, crown dieback, and blowdown after 80 years, blue gum eucalyptus can continue to live much longer and often resprouts when it does fall or break.
- From October 2019 through May 2023, 502 unique volunteers contributed 5,347 hours caring for young trees in our reforestation sites.

- Dying trees often get a second life in the park, repurposed as benches, fencing, and even artwork like Andy Goldsworthy's *Spire*, *Wood Line*, *Tree Fall*, and *Earth Wall*, viewed by thousands of visitors each year.
- More than 140,000 linear feet of Monterey cypress from the Presidio forest was milled to create all of the benches, picnic tables, and other site furnishings on the Presidio Tunnel Tops. The Presidio also provides logs to local schools as nature play material.

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