A watershed is an area of land that catches rain and drains to a body of water. The largest of the Presidio’s two watersheds, Tennessee Hollow, covers 270 acres, or roughly 20 percent of the 1,491 acre park. There are two spring-fed tributaries in the Tennessee Hollow Watershed’s creek system that flow year round, and a third tributary that flows primarily when it’s raining. All three converge at a site named MacArthur Meadow near the historic Lovers’ Lane bridge. The stream then continues north in a single channel through a variety of habitats, ultimately draining into Crissy Marsh and San Francisco Bay.

For centuries, people used this creek system as a water source, beginning with the native Ohlone and later Spanish settlers. Over time, the militaries of Spain, Mexico, and the United States substantially altered where and how the creeks flow, creating dams and wells, and ultimately pushing the water underground into pipes to create dry land for building.

For the past two decades, the restoration of the Tennessee Hollow Watershed has been at the heart of the Presidio’s transformation from military post to national park. A series of restoration projects has brought the watershed back to life, revitalizing native habits, returning long lost plant and wildlife species, and creating new ways for people to experience nature and history in this urban national park.

**FAST FACTS**

- The Tennessee Hollow Watershed is 271 acres, covering nearly 20 percent of the park
- The watershed contains three creek tributaries that ultimately merge into a single stream that flows into Crissy Marsh; this is the primary freshwater source for Crissy Marsh
- The Tennessee Hollow Watershed is named in honor of the 1st Tennessee Regiment, volunteer soldiers who camped in the area in 1898 before shipping out to the Philippines for the Spanish-American War
- There are multiple distinct habitats within the watershed, including serpentine and coastal prairies, riparian, seasonal wet meadow, dunes, brackish marsh, and salt marsh
- In 2017, Presidio Nursery is growing more than 125,000 native plants to be used in restoration projects in the Presidio, including those in the Tennessee Hollow Watershed
ABOUT THE TENNESSEE HOLLOW WATERSHED

For thousands of years, the Tennessee Hollow Watershed supported a diverse system of habitats, including grasslands, coastal scrub, wetlands, marsh, dunes, and their attendant wildlife. As a year-round freshwater source, this area was important to humans as well, beginning with the Yelamu Ohlone, the original inhabitants.

After the Spanish arrived in 1776 and established the Presidio, parts of the watershed were grazed by cattle. Three decades later, a colonial settlement made up of Spanish, Mexican, and Native American families formed an area in the watershed known as El Polin Spring, which was occupied from 1812 through the 1850s. Its most famous resident was Juana Briones.

When the U.S. Army took over the Presidio in 1846, the watershed was altered to meet military needs. Water was redirected via dams and ultimately into channels and underground pipes to dry up the land above. Native vegetation was cleared and non-native eucalyptus and cypress trees were planted as a wind break. During the Spanish-American War in 1898, the watershed’s namesake volunteer soldiers of the 1st Tennessee Regiment camped here before shipping out to the Philippines. Many subsequent tent encampments followed, including temporary housing for San Franciscans left homeless by the 1906 earthquake. Later, a site known as MacArthur Meadow was converted for agricultural use, including greenhouses to supply plants to the 1915 Panama-Pacific International Exposition.

Beginning in the 1930s and through the 1960s, housing, roads, and landfills increasingly crowded out riparian habitats so that only a few isolated pockets remained when the Presidio began the transition from military post to national park.

PARTNERING TO RESTORE THE WATERSHED

When the Presidio joined the national park system in 1994, approximately half of the creek system was buried in storm drains or contained in channels. Every major park planning effort identified the restoration of the Tennessee Hollow Watershed as a critical goal - the National Park Service’s Presidio General Management Plan Amendment (GMPA) in 1994; the Vegetation Management Plan for the Presidio of San Francisco (NPS and Trust) in 2001; and the 2002 Presidio Trust Management Plan (PTMP) (Trust, 2002). In 2007, the Presidio Trust published an Environmental Assessment outlining key projects that would lead to the watershed’s revitalization.

For nearly two decades the Presidio Trust, the National Park Service, and the non-profit Golden Gate National Parks Conservancy have worked together to make the restoration vision a reality. Key projects in this ongoing effort have included:

Crissy Field / Crissy Marsh Restoration (2001)
This site was originally a salt marsh and seasonal home for the Ohlone. The marsh was used as a dump beginning with the early Spanish settlers. The marshland was gradually filled in to make room for the 1915 Panama-Pacific International Exposition and later to support decades of Army aviation and industrial use. In 2001, with lead funding from the Evelyn and Walter Haas, Jr. Fund and Colleen and Robert Haas, Crissy Field was transformed into a thriving coastal parkland, with a revitalized marsh, restored grassy field, seaside promenade, and environmental education facility. More than 70 acres of asphalt and concrete were crushed and reused, 87,000 tons of hazardous material was removed, and 130,000 plugs of native grass were planted with the help of 3,000 volunteers.

Thompson Reach (2005 to 2006)
In 2005, 77,000 tons of Army-era landfill debris was removed, and a portion of creek was brought above ground, becoming the first creek in the Tennessee Hollow Watershed to be “daylighted.” More than 35,000 seedlings from Presidio Nursery were planted to create wildlife habitat. Monitoring has shown
a dramatic increase in the number of nesting birds in this area, and stickleback fish have returned to the creek.

**El Polín Spring (2010 to 2011)**
The source of the watershed’s central tributary, this historically significant freshwater spring was used by the Ohlone, Spanish, and Mexican military families, and the U.S. Army. The restoration project involved rehabilitating the historic creek in this 10-acre site, turning a paved road into a pedestrian trail, and creating a wet meadow. Today it is an important mixed-use site, used for archaeology research, recreation, picnicking, and as an outdoor classroom for thousands of school children every year.

**YMCA Reach (2013 to 2014)**
A parking lot was removed at this site between MacArthur Meadow and Thompson Reach to create a 1.5-acre riparian corridor and seasonal freshwater wetland. The creek was brought above ground, and 16,000 native plants were used in the restoration efforts, including yerba buena, Indian paintbrush, and seep monkey flower.

**Quartermaster Riparian (2014 to 2015)**
Continuing the work done at Thompson Reach, this project removed fill soil and 180-feet of pipe that the Army installed to contain the creek. This section of creek connects Thompson Reach to Crissy Marsh. A new bridge installed over the creek complements the Presidio’s trail network.

**MacArthur Meadow (2015 to 2017)**
This was once a naturally wet meadow where the three streams of the watershed came together. It was filled in so the U.S. Army could build here on dry land. In 2015-2017 the seasonal wetland was restored as a wet meadow. Staff and volunteers are planting 20,000 plants representing 60 species native to San Francisco. A newly elevated section of Lovers’ Lane — the Presidio’s oldest footpath — crosses the meadow via a new boardwalk, allowing school groups and visitors to observe this natural site up close.

**WHAT’S NEXT?**

**Quartermaster Reach Marsh (2019 to 2020)**
Once part of an extensive marsh system at the downstream end of the watershed, the six-acre site known as Quartermaster Reach was severely altered by years of Army use and the construction of Doyle Drive, the highway to the Golden Gate Bridge. The replacement of Doyle Drive with the Presidio Parkway is allowing for an 850-foot length of stream currently running through an underground drain to be brought above ground, replacing asphalt with a rare brackish habitat — where fresh water mixes with salt water. This restoration will link the upstream riparian habitat to Crissy Marsh. The first phase of work occurred in 2014-2015, and the second phase of work will occur in 2019-2020.

**Morton Field / East Tributary (date TBD)**
Riparian habitat has been restored around a section of the spring-fed eastern tributary that remains above ground. Approximately half of the creek remains buried in a storm drain below Morton Field, a mixed use recreation field. In a future phase of this project, the field will be relocated to the Pop Hicks site near the western tributary, which was remediated and capped in 2012.
FUNDING THE TENNESSEE HOLLOW WATERSHED RESTORATION

The restoration of the Tennessee Hollow Watershed from springs to bay has been a major initiative for the Presidio Trust, the National Park Service, and the non-profit Golden Gate National Parks Conservancy.

The restoration of MacArthur Meadow and adjacent areas of the watershed was made possible through the generous support of Matthew and Janice Barger, the Evelyn and Walter Haas, Jr. Fund, the Horace W. Goldsmith Foundation, the Kingfisher Foundation, The James Irvine Foundation, Jack Weeden and David L. Davies, Lynn Mellen Wendell and Peter Wendell, John Atwater and Diana Nelson, Julie and Will Parish, Laura and John Gamble, and the RBC Foundation. These significant philanthropic contributions have leveraged public funding—including funds from the San Francisco International Airport wetlands mitigation agreement—to make this ambitious, multi-year restoration effort possible.