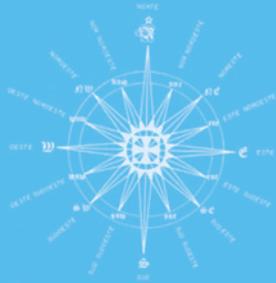
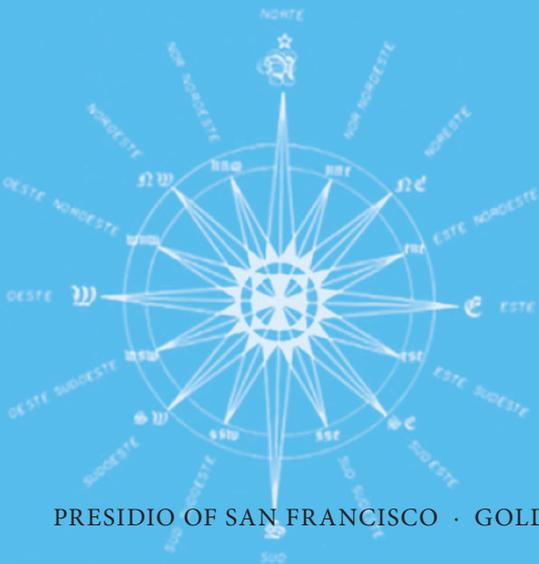


THE TENNESSEE HOLLOW

WATERSHED
QUEST
ADVENTURE



What Is a Quest?

A quest is a kind of treasure hunt that guides you through a special place. On the surface, a quest seems fairly straightforward: rhyming clues, fun activities and a hidden questing box. Beneath the surface is an opportunity to explore a complex landscape and its rich heritage while fostering a sense of place.

How this Quest works

Use this quest as a group activity or as a self-guided tour. **You will need approximately one and 1/2 hours for an easy half mile walk (one way).**

- Bring a pencil for each booklet holder.
- If a large group, make teams no larger than 6-7 people.
- A portable toilet is located at the destination near El Polin Springs.
- Please stay on the trails and refrain from feeding wildlife.

Look for location clues in the rhymes and drawings. Read each section, then proceed to the next stop. Take time to participate in each activity (or adapt to your group's interest.)

Some activities use your sense of touch, your imagination, or listening and observation skills. Some require written answers, while others require a drawing or group interactions.

Follow the clues and enjoy the activities to discover Tennessee Hollow Watershed and its hidden questing box (but please remember that "it's about the journey, not the destination!")

This questing experience is adaptable for ages 8-12.

A parent/teacher guide and other resources can be found at: www.presidio.gov/teachers

For more information call (415) 561-4449.



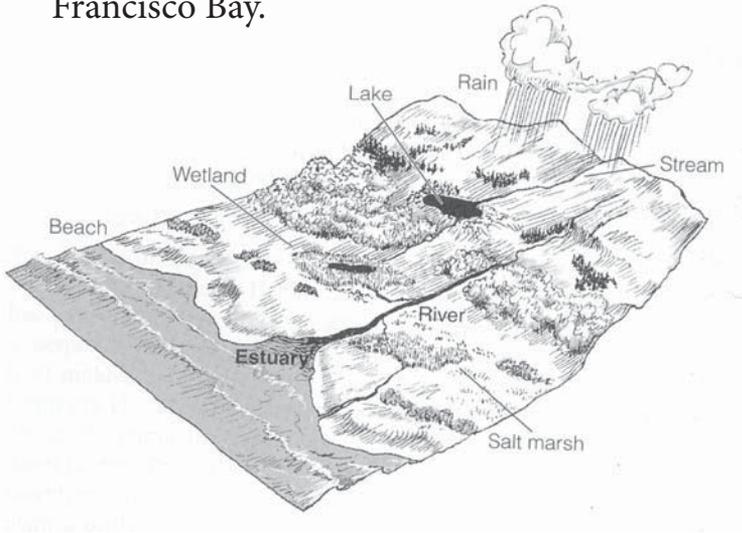
Where to begin...

This Quest begins at 603 Mason Street (the cross street is Halleck), in the Presidio of San Francisco which until 2010 was the Crissy Field Center. (Note: The Crissy Field Center will be temporarily relocated until 2015 during the reconstruction of Doyle Drive.)



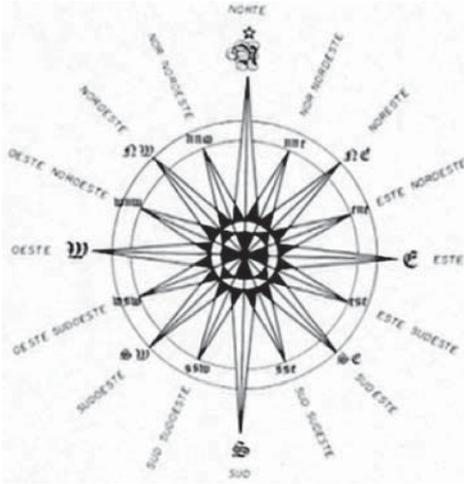
What Is a Watershed?

Everyone on our planet lives in a watershed. A watershed is the geographic area within which all water flows downhill by gravity to a central point. Tennessee Hollow is the Presidio's largest watershed. It encompasses about 1/5th of the park and drains three streams that flow to the Crissy Field Marsh and the San Francisco Bay.



I am the waters of the Tennessee Hollow Watershed. Although you may not always see me I'll always be nearby on your Quest today...

Get oriented! Look around and locate north, south, east, and west. Find the Bay, Golden Gate Bridge and Pacific Ocean.



The Compass Rose above was used on Spanish maps when they were exploring Alta (“upper”) California in the 1700s.

1. Just where is this water?

On this quest you'll dig down deeper looking, listening, sensing and thinking. Finding this watershed needs your attention: Start with the water you soon will be drinking.

Outside the building's doorway a **sip of water** seek.

Unlike your water tap at home, taste Presidio water from Lobos Creek*!



Does Presidio water taste different than water at home? List some ways you use water everyday.

At home do you know where your water comes from?

*Many people visit or live and work in the Presidio every day. They all use water from nearby Lobos Creek (near Baker Beach).

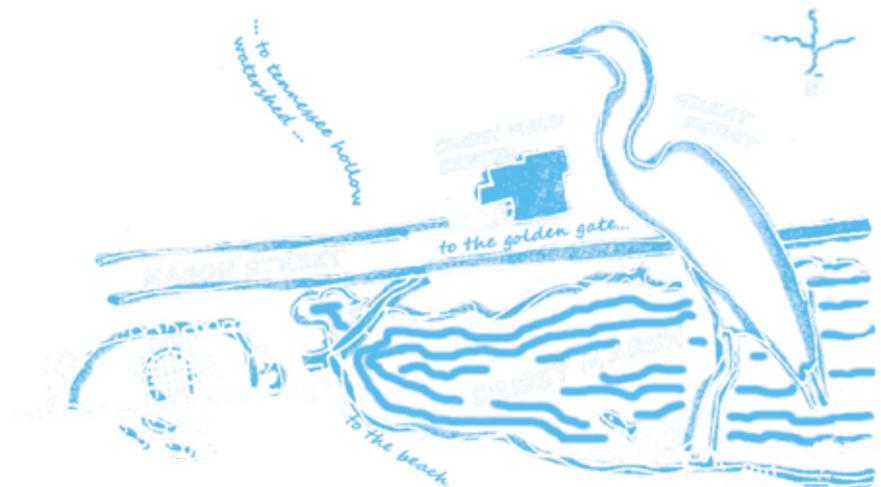
Lobos Creek lies in one of three main watersheds in the Presidio. You can visit it by walking on the trail in Lobos Creek Valley. Today's Quest explores Tennessee Hollow Watershed.

2. Some saltwater, please

With the building entrance stairs
at your backs
start your quest counting
24 parallel walkway **cracks**.

Toward sailboards & boats
you'll **cross** at the **stripes**.
The pavement conceals that
the water's in pipes.

Put your footsteps upon
a **sandy path** lined with lupine
where seagulls fly and search for food,
and swallows go swiftly swoopin'.



3. Time travel to early days on the marsh

Swing open “nature’s gate.”

At the **bridge** please **stop** and ponder
facing the Golden Gate Bridge
imagine this and wonder...

Long ago a huge water way
flowed over vast **sands**.

Later concrete was used
to cover these lands.

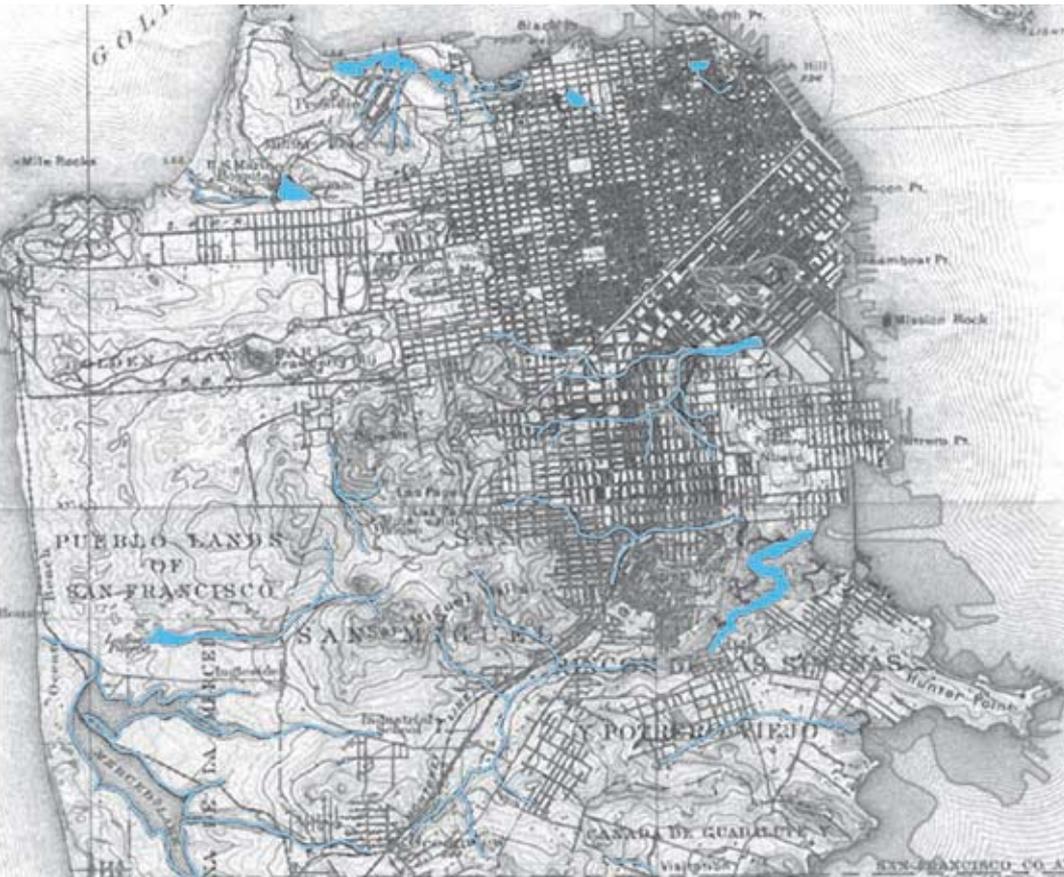
Our marsh was recreated
turning back history’s pages
with work and much care
by people of all ages.



Volunteers planting in 2001

Look at the “Wetlands Renaissance” sign.

The marsh in front of you is 20 acres. How many acres
was the original wetland?



This San Francisco map from the late 1800s gives a sense of the city's watersheds and original creeks and lakes. Can you find the Presidio? Circle the Tennessee Hollow Watershed. How much of this water do you think you can see around the city today?

Can you find me on this map?

Draw or describe a bird that you see.

The islands in the marsh were designed by humans to allow birds to rest undisturbed by park visitors and predators.

4. You're at the bottom of the watershed

There's lots of water out in the ocean.
Can you also find water up **in the sky**?
Water cycles in perpetual motion:
liquid, vapor, raindrops, then life—oh my!

As the water moves across the land
it follows gravity's law, going down and down
collecting in streams and continuing on
until, at last, the ocean is found.

Take a deep breath and smell the ocean air. From which direction is the wind blowing? (look at the sand or plants moving for a clue)

The Presidio is bordered on the west by the Pacific Ocean and on the north by San Francisco Bay.

5. Where the stream meets the bay

Quick turn around!
And **spy** a **creek's outlet**.
Here, fingerling fish
may feed a white egret.



Hungry birds use
all of their stealth
to catch the saltwater fish
who come here for their health.

Freshwater that flows
to this marsh from the springs...
Much food for this habitat
the **detritus*** brings.

* decaying plant matter



Is it low or high tide? Find the high tide water line. Clue:
Look for color changes on the shoreline or concrete outlet.

Since restoration, biologists
have identified more than
17 fish species and 135 bird
species using this tidal
marsh.

6. Follow that water...upstream

Now let's journey **upstream**
and walk the course
of our nourishing freshwater stream
to the springs and its source.



*Oak (right), magnolia
(left)

Retracing your steps back to the street,
passing under **cars in the air**
go south on the sidewalk
and up and beyond the **wooden stairs**.

Walking a bit, spy a leafy **live oak***,
and **pass** a grand magnolia tree.
The **first fire hydrant** announces
the next place for you to be.

Look down for a **storm drain**
and consider this thought:
A place for your garbage
it definitely is **NOT!**

Although the litter might be
out of your hands
it would be on its way
to the bay and wetlands.

In the Presidio,
water that flows off
vegetation, roofs
and roads goes into
a system of pipes,
many of which flow
to the marsh and
bay.

*A concrete pipe that carries water.



Where does storm water go **in your neighborhood?**
What pollutants might go into storm drains?
(share with your team)

7. Re-connecting with the water: “Day-lighting” a buried stream

At the red **stop sign**
see **palm trees** everywhere.

The ones you want
are those **planted in squares**.

(go to the viewpoint between the 2nd and 3rd palm tree)

After fill soils were removed here,
visitors have delighted
to see this once buried stream
has now been “day-lighted*”!

*Daylighting means unearthing a piped creek

A restoration project
renewed this ecosystem.
So many **California plants**
you can't even count them.



Swordfern



Dune Strawberry



I was first put in a concrete ditch in the 1880s here to make a target range here. After fill was removed in 2006, volunteers helped plant 40,000 seedlings.

Remember that water gathers in the lowest spot. **Locate** the creek by spotting the dense plants closest to the life-giving water. **Draw** the shape of the creek as it meanders. Then look all the way downstream and at the stairs at the southern end of the site and **imagine** that in the near future more of this creek will be daylighted (all the way to Crissy Field Marsh!)

8. Connect your watershed to the world

Continue **east** on the sidewalk towards taller **palm trees** from faraway lands but no coconuts on these!

Observe the **blue Earth flag**.^{*} Then keep going slightly uphill strolling the Promenade path your quest is now **half fulfilled**.



***Look at the blue flag.** Guess what percentage of Earth is covered by water:

___25% ___50% ___75%

Notice the plantings around the buildings and walkways. They require more water from our Lobos Creek source when there is less rain. In the Bay Area we get our rains mostly in the winter. Is it the rainy or dry season?

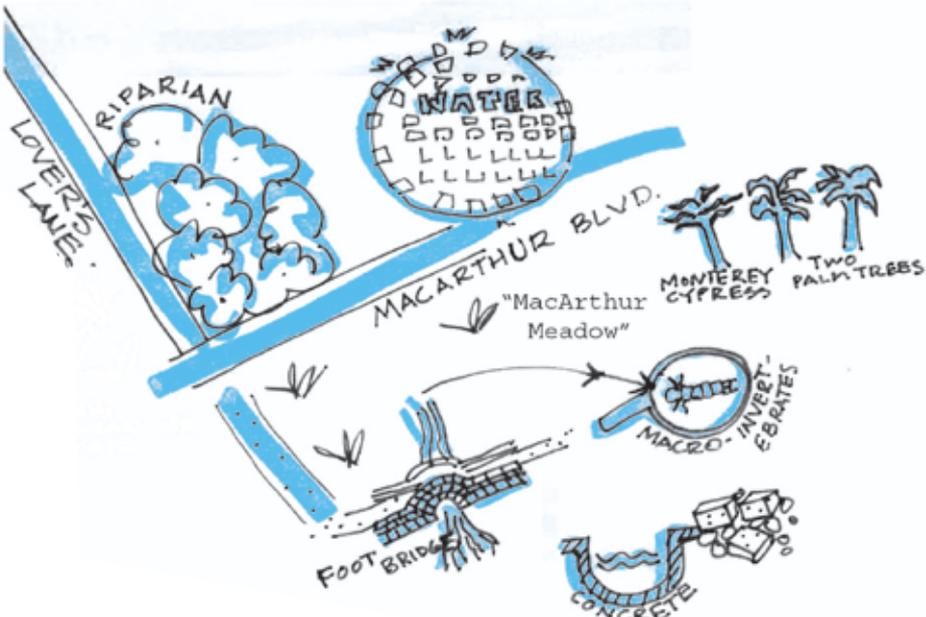
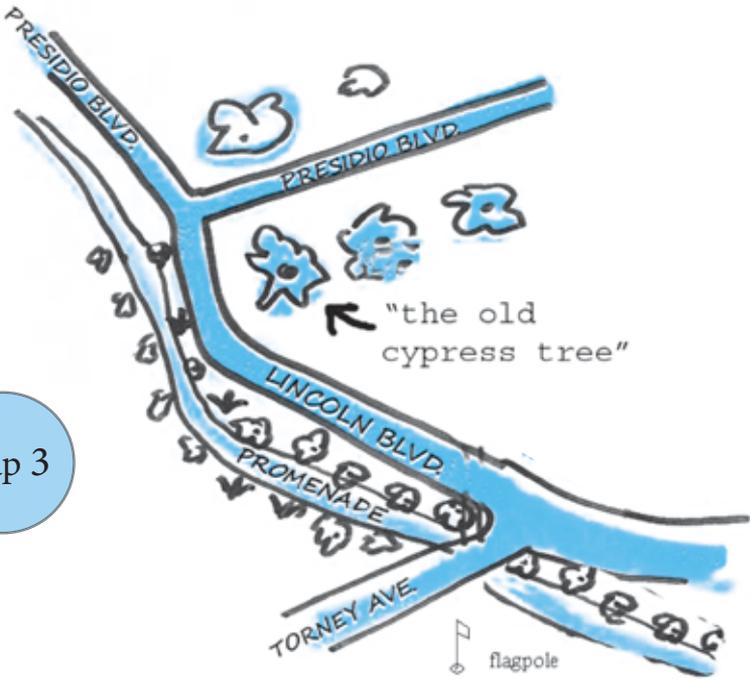
Ahead, at the **crossroads** **spy the tallest** cypress tree (If you need a hint see map number three).



It's a very old tree, taller than the Rurik's mast.^{*} **Cross the street** towards it but keep going past.

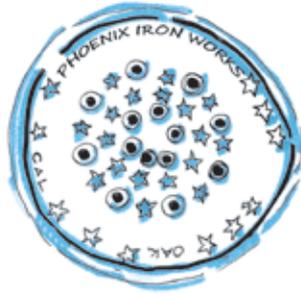
^{*}In October 1816 the Russian ship called the Rurik, sailed into San Francisco Bay, carrying naturalists who gathered first specimens of California poppy and other species.

Map 3



9. When we build, we affect the water's flow

Where the **red curb ends** for the second time **look down** for the stars to follow this rhyme.



Seventeen more squares of sidewalk:
At MacArthur Avenue, **cross**.
“Only rain down the drain” signs assure that you’re not lost.



I am now underground in a pipe...

10. Our stream surfaces again!

A hidden path
lies just out of sight.
Go past **4 lamp posts**
and make a **right...**

Where do you think
the water could be?
Visit a **brick bridge**
beneath the biggest tree.

Eucalyptus trees **absorb large quantities** of water for their quick growth. At the big eucalyptus tree by the creek how many people are required to circle the tree at its base? Go ahead and try it!

11. Rest here for riparian restoration

Eucalyptus tree placed here by man.
So big and old, what do we think?
Different kinds of plants
grow where there's plenty to drink.

See our creek in a channel:

It can't meander as it is wishing.
Framed by concrete and bricks,
some **insects*** for creek health are
missing.



*Macroinvertebrates such as stoneflies can signify a healthy stream. Daylighted, streams become better homes for bugs.

Streams are pathways that move materials and organisms.

Habitat = home: food, water, shelter, space.

Riparian = the life along a stream.

12. A living clue to find water

Can you still **orient yourself**? Which direction is the marsh?

Do you notice any change in the climate here?

warmer cooler about the same

Return to the street and **go right**.
Toward another tall cypress follow,
looking across the street,
notice a clump of **willows**.



Willow trees are a sign of soils with a lot of water content. These trees are growing in the only remnant of the original creeks in this watershed.

Stay on the sidewalk
and continue this line,
near **two palm trees** and a **cypress**
look for a **diamond-shaped** sign.

13. Hey! Where'd the stream go?

A sign says “**Dead End**” but it’s a figure of speech, for what is awaiting you is life within reach.

Walk down MacArthur Street.

Houses to the left,
houses to the right,
In the future ahead
a **restored stream** will be in sight.



Stop at the Wallen Street sign. Look at the landscape behind the homes. **Notice** that you are in a small valley carved out over centuries by the meandering stream. Who do you think might have used this water before the Spanish arrived in 1776? (hint: look at page 21)

At the last **sidewalk’s end** you’ll cross the street
Where’s the water now?
It’s beneath your feet!



After the 1906 earthquake many families who lost their homes stayed near here in tents!

14. Nearing the source

To follow the stream
let the **cobblestones be your guide.**
In the center of the park
is a good place to hide.

Where else in the City
can you touch a fresh creek?
Look down in the water
for macroinvertebrates to peek.

Leave a wet handprint on the **stones.**
Then straddle the stream to the **west**
or hop side-to-side
towards the end of the Quest.

Cross the last bit of pavement.

15. El Polin Springs

Here, rainfall drains
through sand and **serpentine***
to emerge here anew
at our source as a spring.

Drinking this water will give you lots of kids
Ohlone peoples and **Spaniards** believed.
The Army came next from across the U.S.
And near here a water dam was achieved.

* *Our state rock.*

Native Ohlone peoples lived on the San Francisco peninsula for thousands of years. El Presidio was established by Spanish colonists.

Native peoples worked with settlers like Juana Briones (pictured here) who lived at El Polin Springs. A map from 1820 of El Presidio shows the trail leading from the fort to the “*Ojo de Agua- El Polin*” (“eye of water” in Spanish).



16. Almost there, but wait...

Linger here

and enjoy this place.
Slow down your thoughts,
slow down your pace.

Perk up your ears,
breath deep and slow.
Now you're ready
to really get to know.

This **ancient spring**
that once was a secret
attracts many **birds**
much smaller than the egret.

Stand quietly to best observe birds that use the springs. **Close your eyes** for a moment and listen for natural sounds. Any scents in the air? **Describe** your discovery of this special place:

17. Congratulations!

You've walked our Quest
from bay to source,
and explored a watershed
on a meandering course!

If you **peek behind**
the El Polin sign,
your Quest will be done...
You've solved the rhyme!



Look in the box and stamp your booklet in the box above!

Thank you for exploring the Tennessee Hollow Watershed! For more information about Tennessee Hollow Watershed Restoration Project: www.presidio.gov



