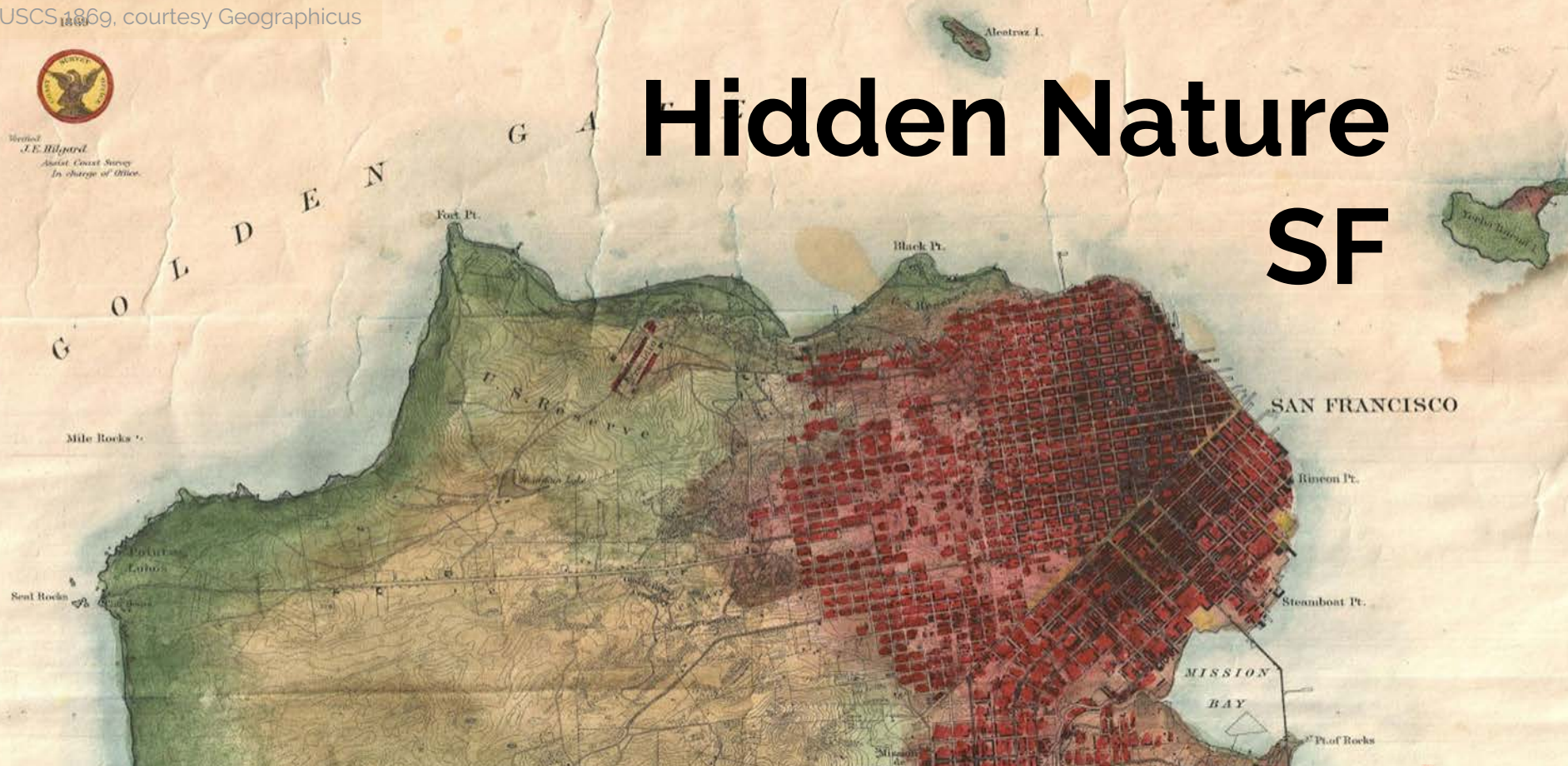




Vertical
J.E. Hilgard
Assistant Coast Survey
In charge of Office.

Hidden Nature SF



Presentation Outline

- About **Hidden Nature SF**
- The basics of “historical ecology”
- Habitats once found in San Francisco
- Shifts in San Francisco’s wildlife
- Urban biodiversity and the future



Was San Francisco a barren wasteland?
What do we want its nature to be in the future?



1850: “The country about San Francisco Bay seems (so far as I have seen it) to be the most **sterile and barren waste** that you can well imagine... On ship board... there you are free from the **continual smother of sand** which fills the air on shore.”

(Frank [Pearl] to his sister, Mrs. Theresa S. H. Pearl. July 8, 1850, Gold Rush letter, courtesy of The Bancroft Library)

Hidden Nature SF

Sponsored by:
SIMONS FOUNDATION



← -2.5 year project
→
(Jan 2019-April 2021)

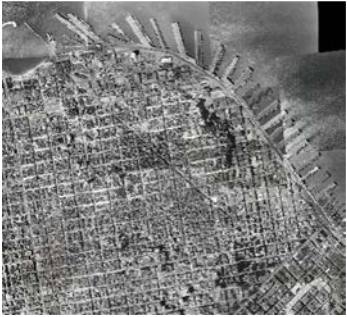
-Reconstruct San Francisco's
historical ecology as it was
before the city (pre-Gold Rush)

-**Engage non-scientists** in the
ecological past and hidden nature
of their neighborhoods



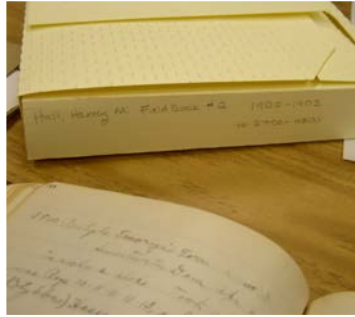
Historical Ecology Sources

Photos



- Landscape photos
- Aerial imagery
- Plus sketches, paintings...

Textual data



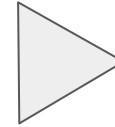
- Herbarium records & specimen data
- Newspaper articles
- Public Land Survey records
- Explorer's diaries
- ...

Maps



- Soil surveys
- US Coast Survey T-sheets
- USGS quads
- County Surveyor's records
- Local plat maps and property surveys
- ...

From local/regional archives...



- SF Public Library
- California Historical Society
- California State Library
- California State Archives
- The Bancroft Library
- UCB Earth Science & Map Library
- Society of California Pioneers
- Library of Congress
- Online databases
- ...

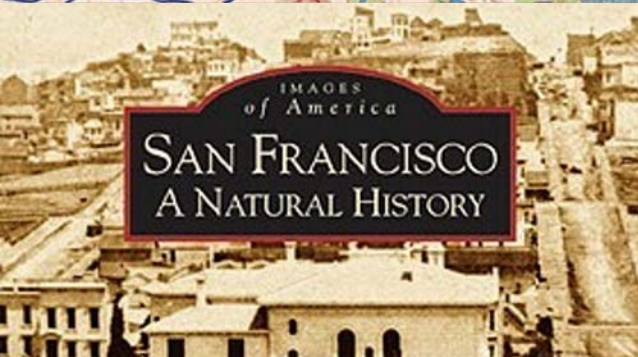
SEEP CITY

SAN FRANCISCO
WATER HISTORY ATLAS by Joel Pomerantz

The Ecological and Natural History of San Francisco: Wild in the City



SF watershed map



IMAGES
of America

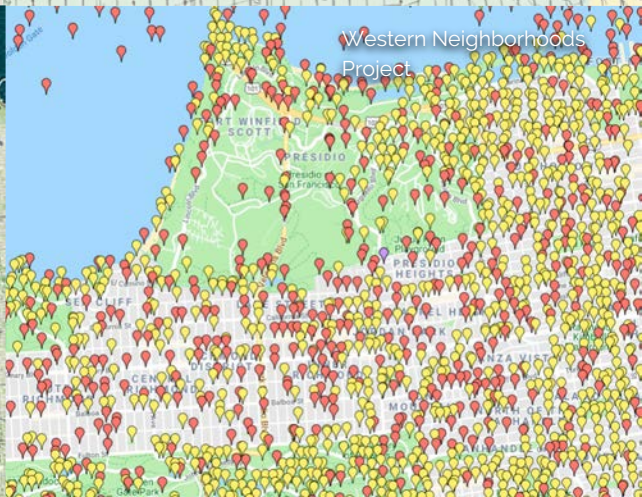
SAN FRANCISCO A NATURAL HISTORY

Nature in the CITY

What is San Francisco for you? The city is people, buildings, and views. It is also a groundscape made over millennia by tectonic movements, fire, and volcanic eruptions. Before the powerful historic forces that continue to shape and shape our region today, sunlight, moisture, and geology create a landscape hospitable to more than 1000 species, some of which live here and only here. For centuries, people have lived in the city, and the landscape has been shaped by wild plants and animals. In the 1930s, European colonization radically altered many natural and cultural processes which today we are working to restore. The goal here is to map the present, and create a new narrative about the future of our city, one that is more inclusive, more beautiful, and more life.

EXPLORE AND DISCOVER

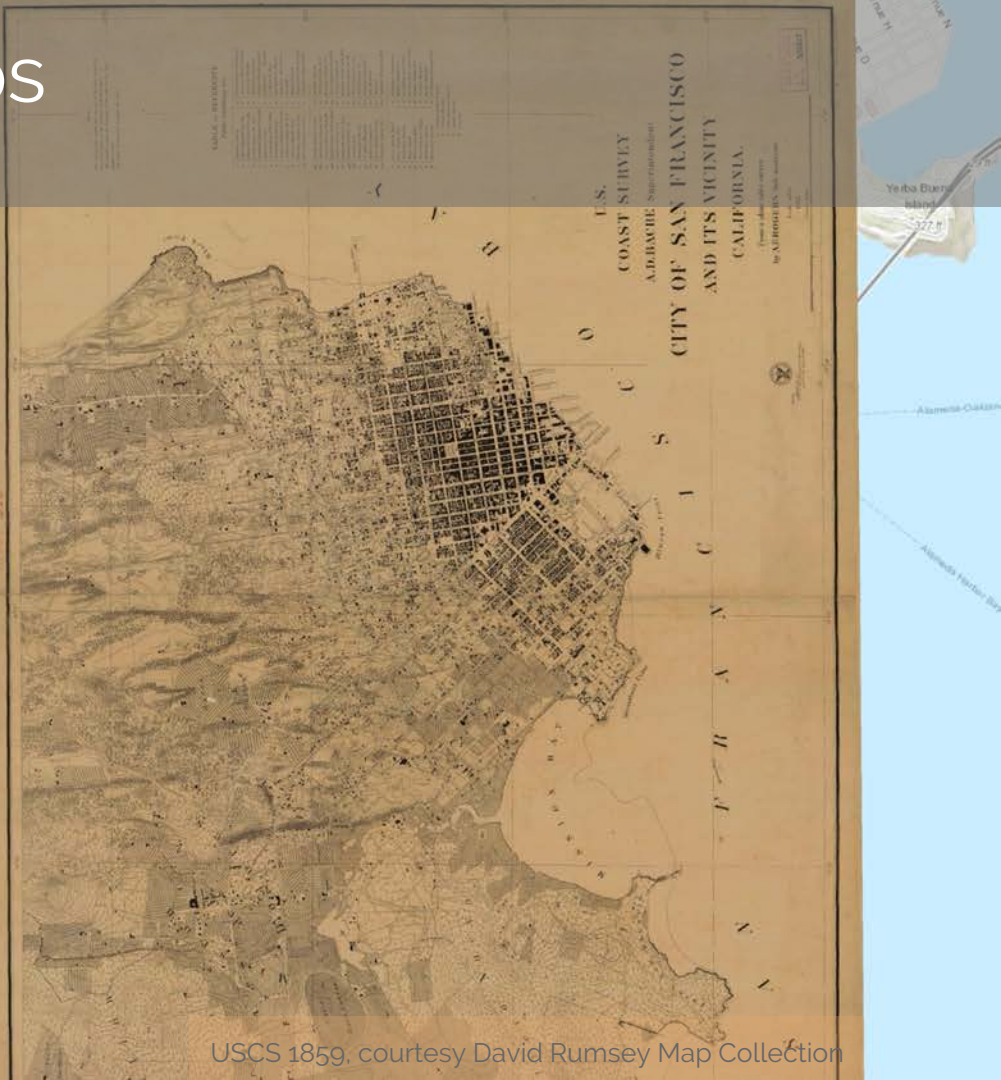
- LANDMARKS AND HISTORIC SITES
- PARKS & OPEN SPACES
- TREE COVER
- LANDS & WATERSHEDS TODAY
- HISTORIC METALLURGY & MINING
- WATERS
- NATIVE PLANT HABITATS
- NATIVE EDUCATION SITES
- CAMPFIRE RISK
- SOFT & CALICHE
- HISTORIC OVERLOOKS
- STEELY TRAILS



Western Neighborhoods
Project

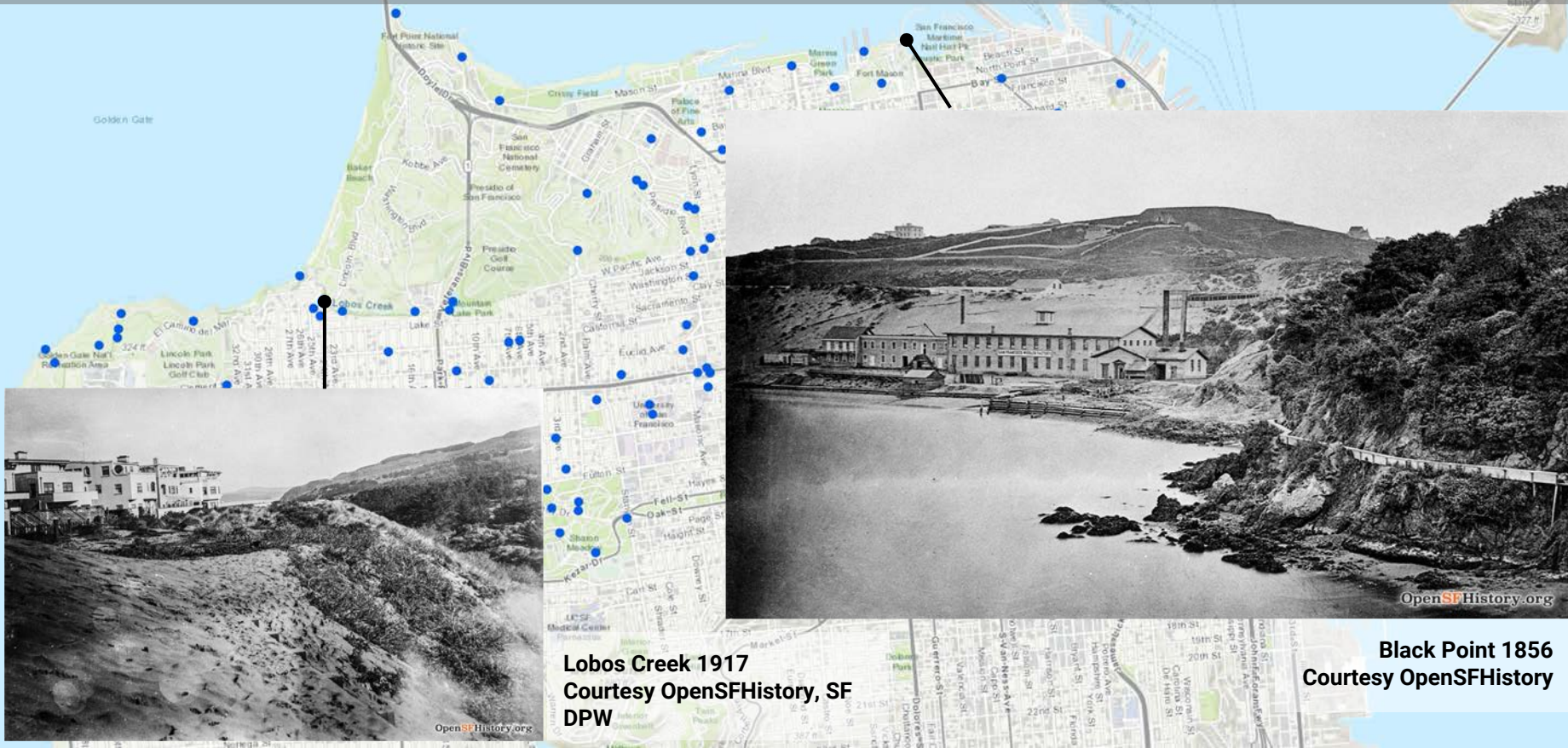


Georeferenced ~80 maps (majority ~1850-1910)



Compiled ~210 geolocated photos

(majority ~1850-1910)

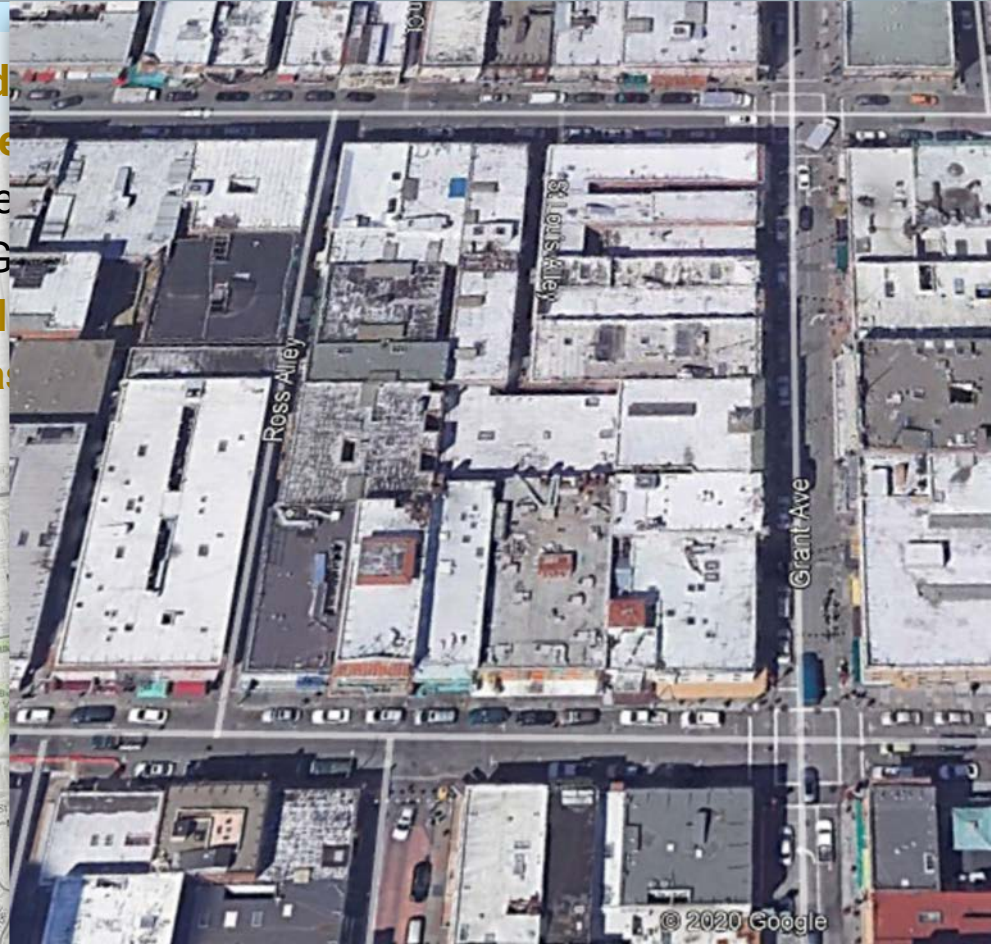


Lobos Creek 1917
Courtesy OpenSFHistory, SF
DPW

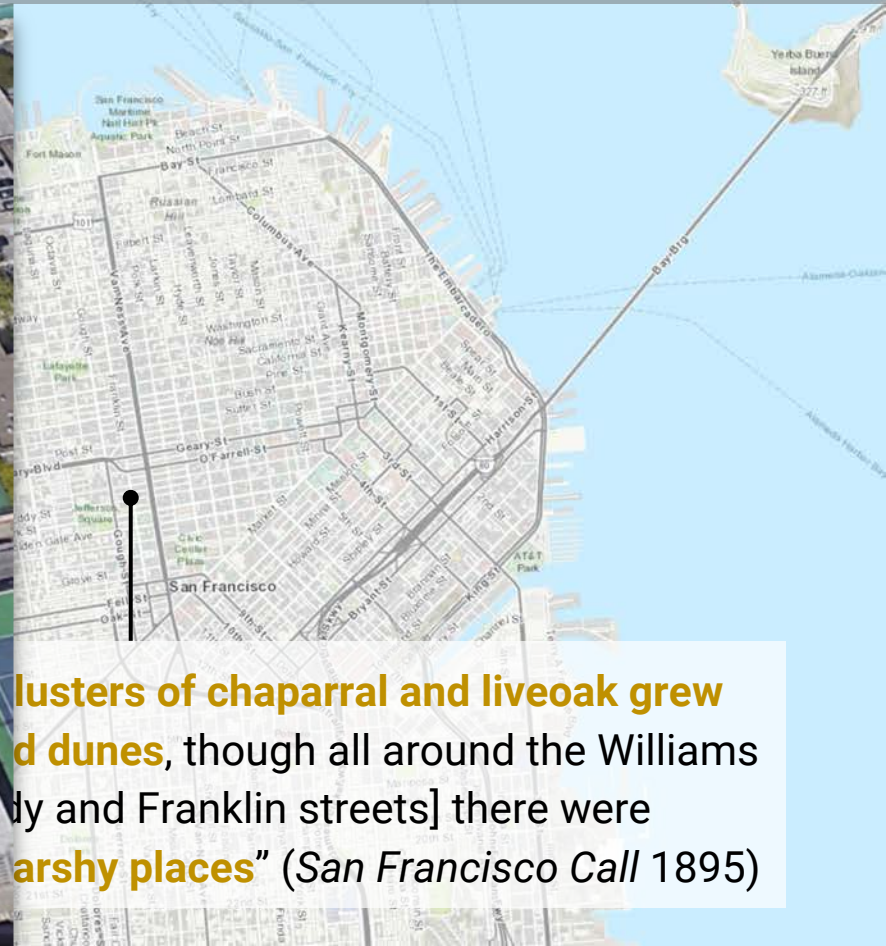
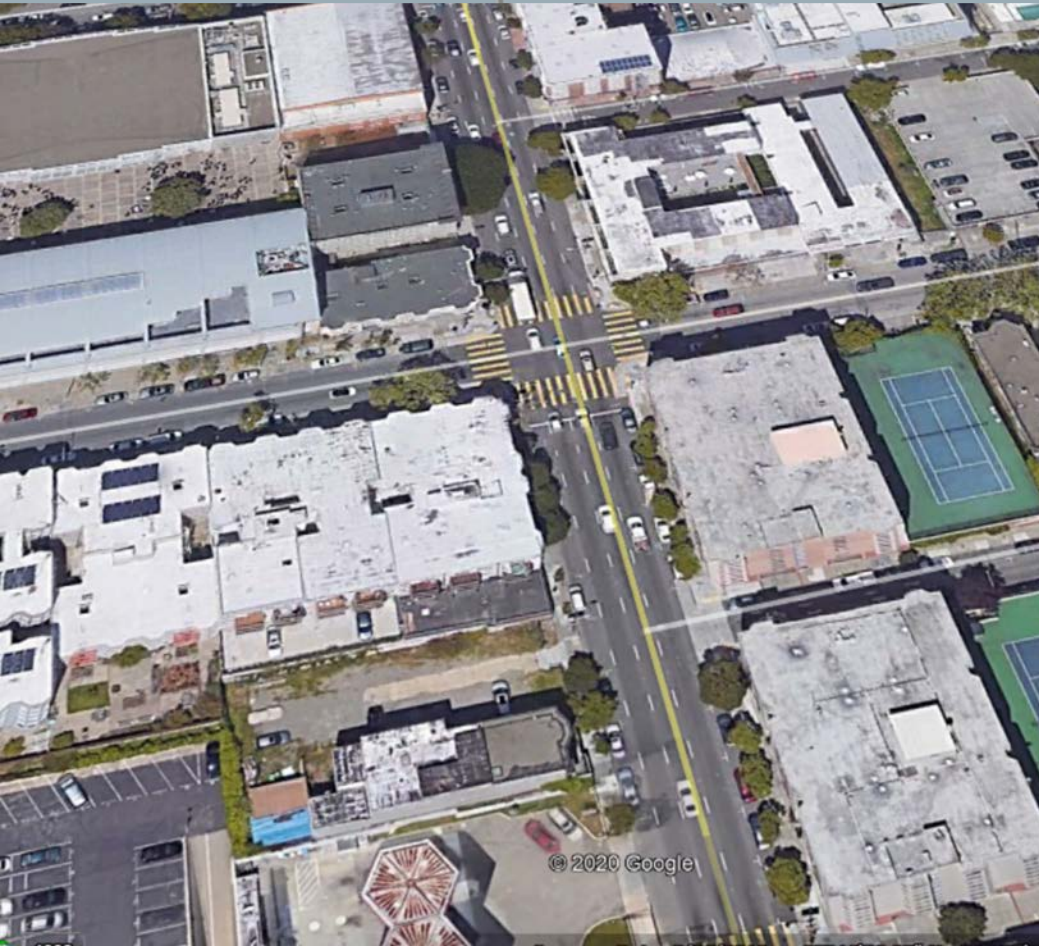
Black Point 1856
Courtesy OpenSFHistory

Textual excerpts

1846: "Near the head of Jackson street... the **growth of dwarfed and wind-flattened shrubbery covering these hills** extended down within three feet of the plaza, or about the line of Dupont [Grant] street. This brush was the cover of **coyote and wildcats, and sometimes larger game, and was inhabited by innumerable quail.**" (Sacramento Union 1871)



Textual excerpts

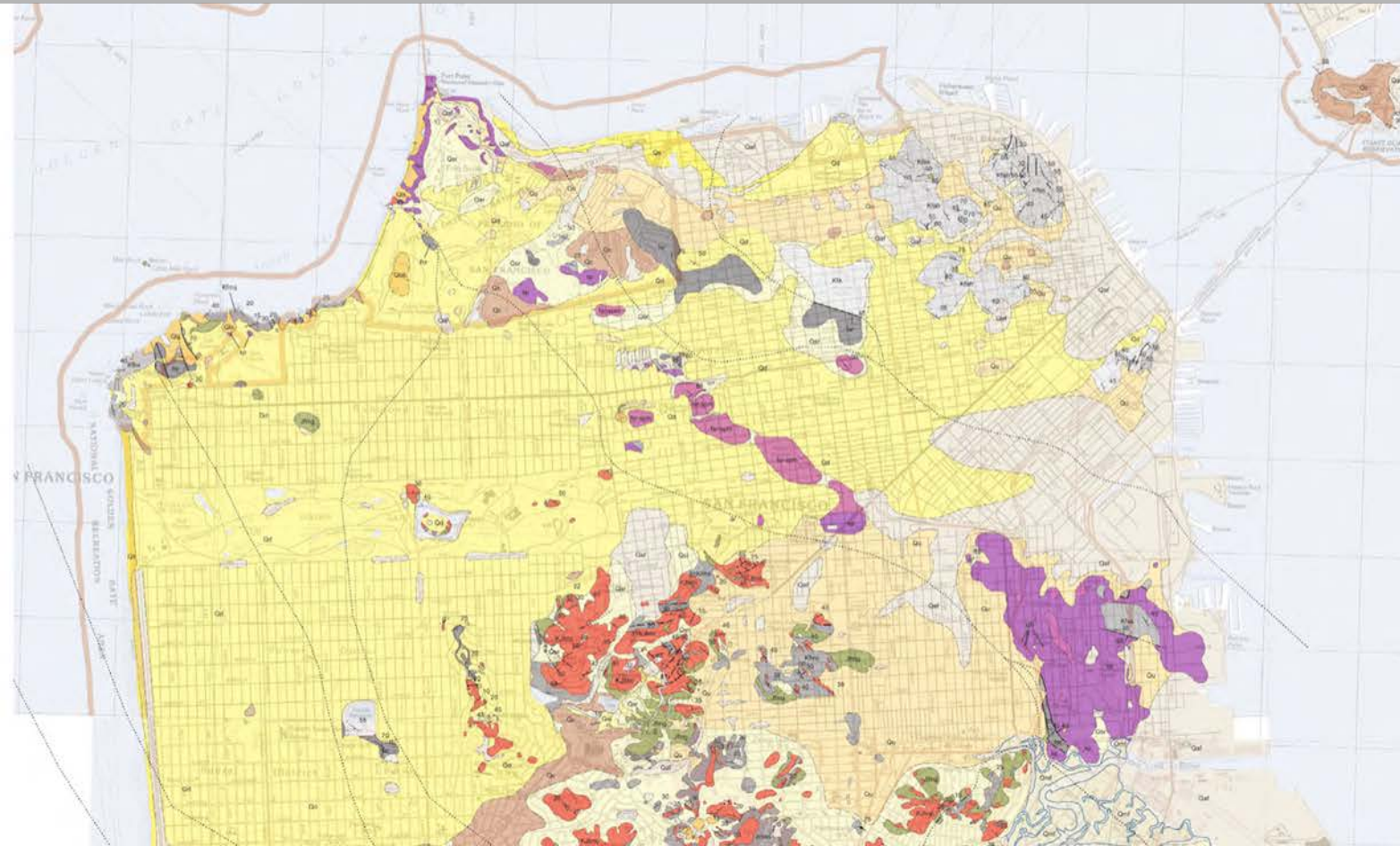


clusters of chaparral and liveoak grew
dunes, though all around the Williams
by and Franklin streets] there were
marshy places” (San Francisco Call 1895)

'Eco-Detective' Work



Drivers of Diversity



LIST OF MAP UNITS

SURFICIAL DEPOSITS

Qaf	Artificial fill
Qarf	Artificial fill over bay mud
Qs	Beach deposits
Qd	Dune sand
Qsr	Slope and river fill
Qls	Landslide deposits
Qob	Older beach deposits
Qu	Undifferentiated surficial deposits
Qc	Colma Formation

OVERLAP STRATA

Qfm	Merced Formation
-----	------------------

FRANCISCAN COMPLEX

Coastal Belt

Tf	SAN BRUNO MOUNTAIN TERRANE Sandstone
----	---

Central Belt

rdls	BOLINAS RIDGE TERRANE Sandstone
------	------------------------------------

kfh	Shale
-----	-------

ktas	ALCATRAZ TERRANE Sandstone
------	-------------------------------

rfah	Shale
------	-------

kfa	Sandstone and shale
-----	---------------------

km	MARIN HEADLANDS TERRANE Sandstone
----	--------------------------------------

kfm	Chert
-----	-------

kmg	Greenstone
-----	------------

kmms	ANGEL ISLAND TERRANE Metasandstone
------	---------------------------------------

lr	MÉLANGE Sheared sandstone and shale with small blocks of other rock
----	--

klb	High-grade block
-----	------------------

FRANCISCAN OR COAST RANGE OPHIOLITE

sp	HUNTERS POINT SERPENTINITE-MATRIX MÉLANGE Serpentine with small blocks of other rock
----	---

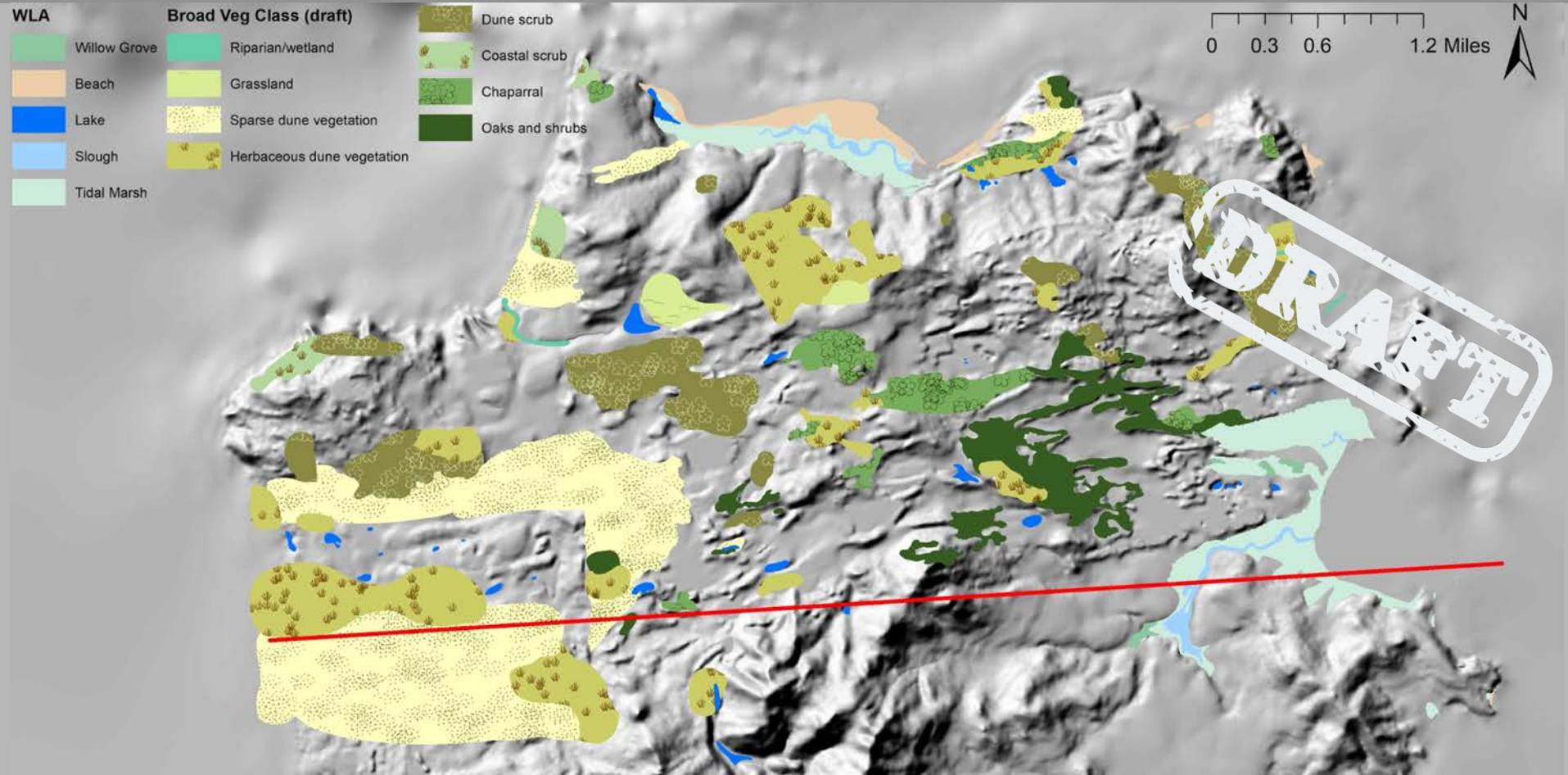
spn	Hard serpentine
-----	-----------------

spgpm	Interbedded serpentine and sheared sandstone and shale
-------	--

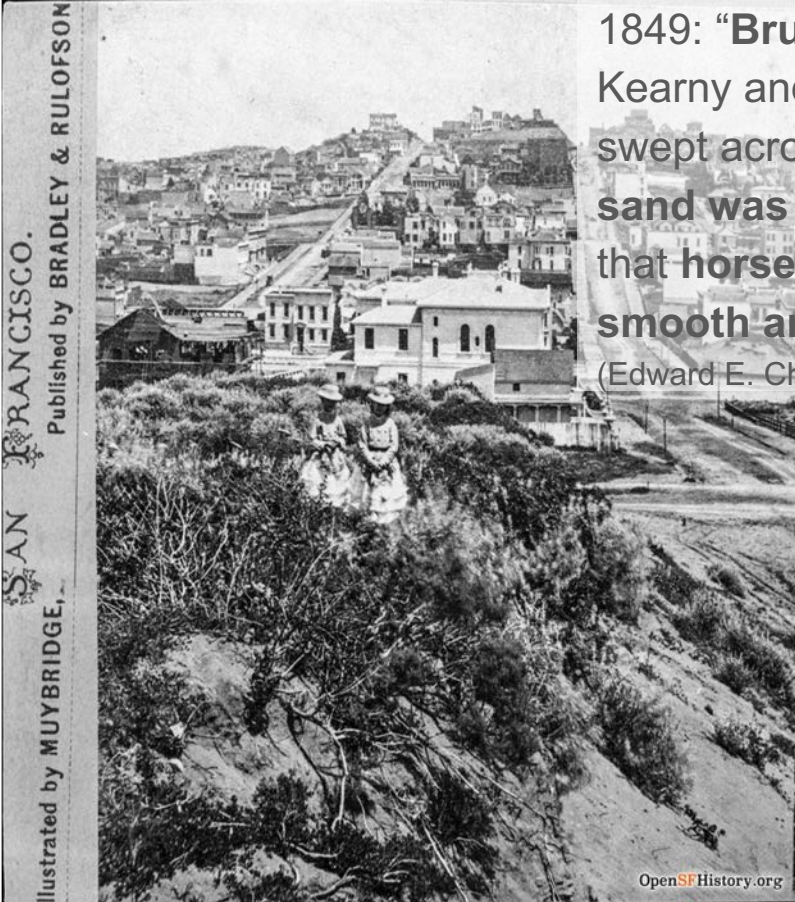
gd	Gabbro
----	--------

kfs	Franciscan(?) sandstone
-----	-------------------------

Historical Ecology Synthesis: Preliminary Findings

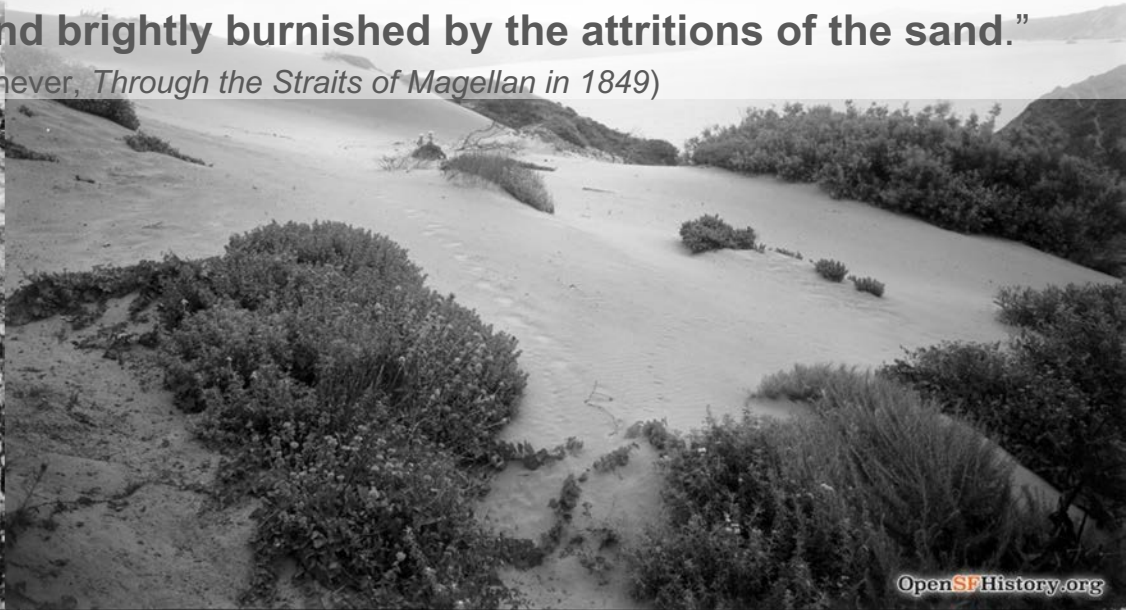


Dune scrub

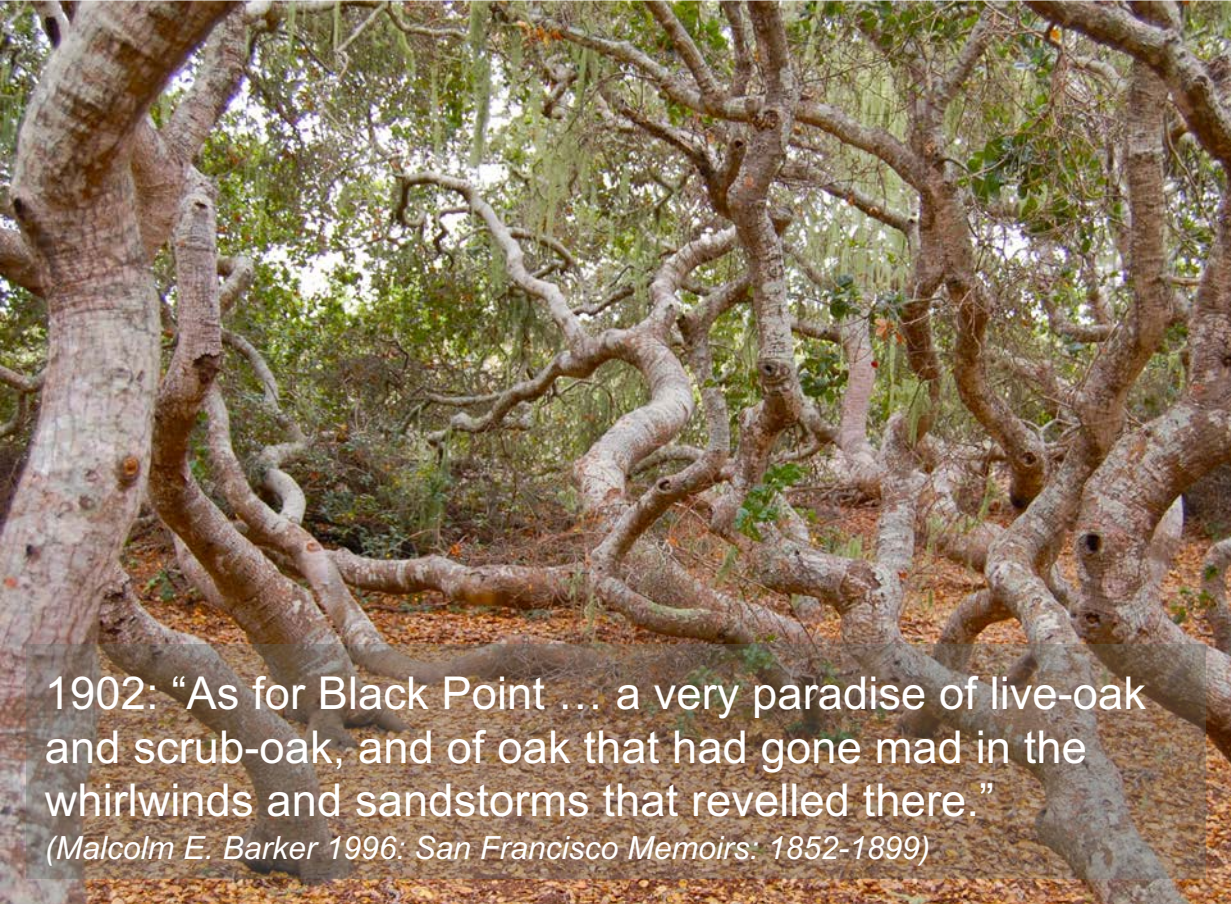


1849: **“Brush covered the land, or rather sand hills, between Kearny and Dupont Streets, near Sacramento. In fact, the winds swept across a series of sand hills with such force that at times the sand was driven in clouds along the main traveled roads. I noticed that horse shoes and pieces of metal lying on the surface were smooth and brightly burnished by the attritions of the sand.”**

(Edward E. Chever, *Through the Straits of Magellan in 1849*)



Dwarf Oak Woodland



1902: “As for Black Point ... a very paradise of live-oak and scrub-oak, and of oak that had gone mad in the whirlwinds and sandstorms that revelled there.”

(Malcolm E. Barker 1996: San Francisco Memoirs: 1852-1899)



Interdune Ponds and Lakes



Dwarf Oak, Interdune Ponds, Tule Elk

“In place of all these comes a **vision of rounded hills and green valleys**, of stretch upon stretch of **soft dunes billowing clear to the horizon.**”

(San Francisco Call, 4/5/1896)



Wildlife Shifts | Initial results

EXTIRPATED MAMMALS of San Francisco



(year last documented)

Documented historical occurrence

Presumed historical occurrence

Functionally extirpated



Wildlife Losses | Initial results

Species-habitat associations associated with **extirpation**
(local extinction)

- Grassland
- Riparian habitats
- Shrublands

Species traits associated with **extirpation**

- Larger species
- Habitat specialists

California quail (2018)

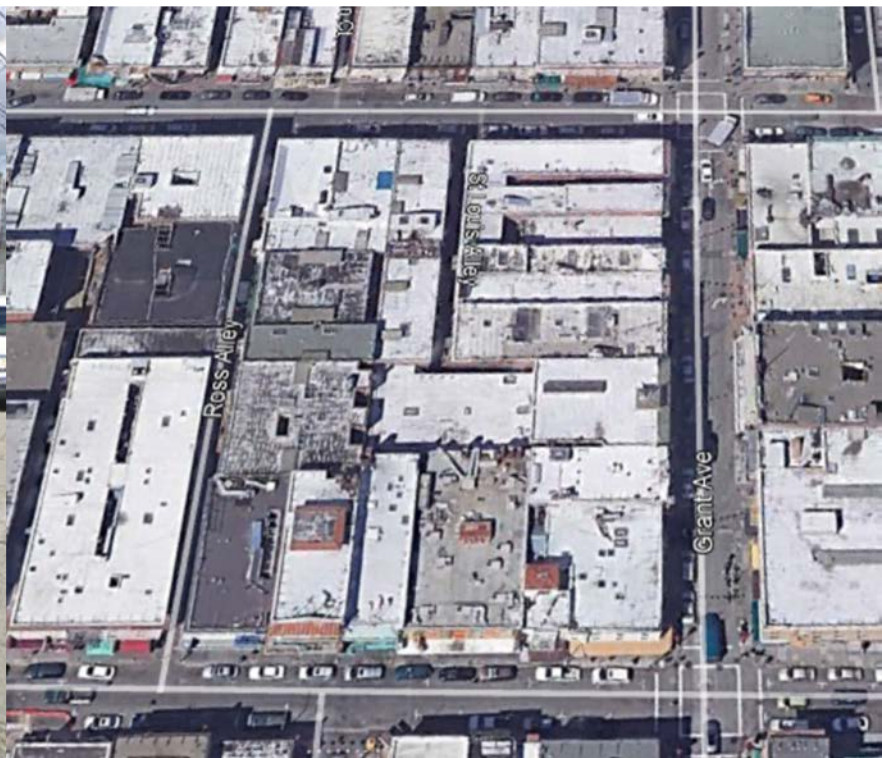
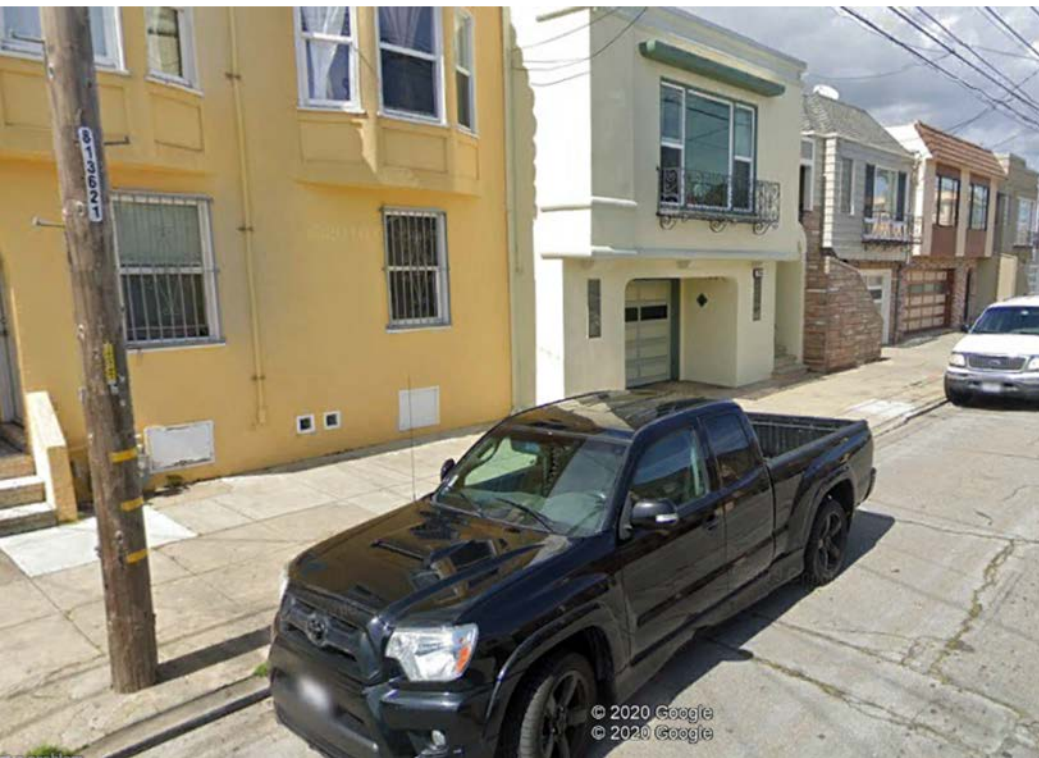


(year last documented)

Functionally
extirpated

California Quail (*Callipepla californica*)





BiodiverseCity St. Louis



biodiverseCity
— st. louis —

A Community Initiative to Promote, Protect and Plan for Biodiversity Throughout the Greater St. Louis Region

Take the Pledge!

Supported by Ameren Missouri



NEW YORK CITY
**Nature Goals
2050**

BIODIVERSITY STRATEGY

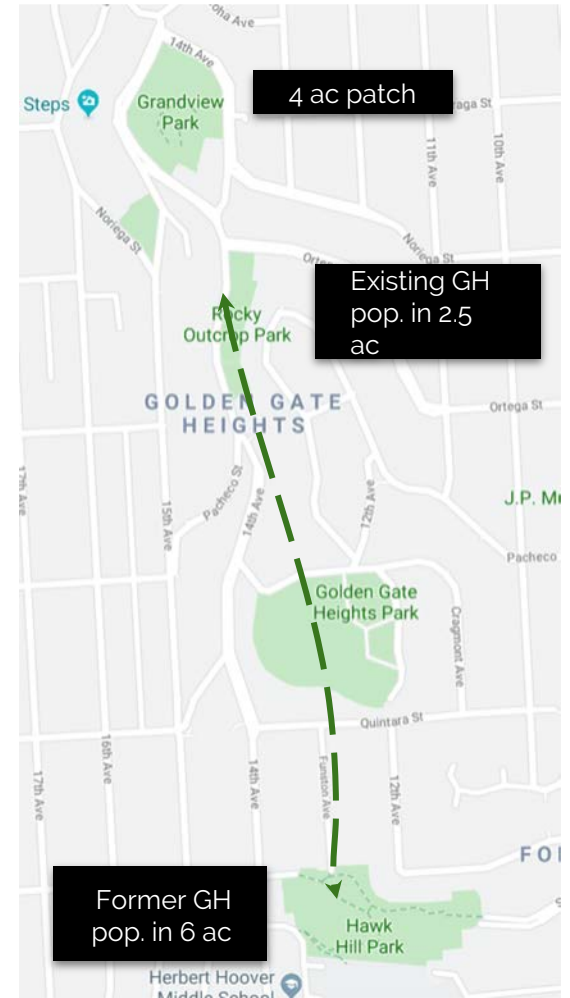
VANCOUVER BOARD OF PARKS AND RECREATION



**PLAN
BIODIVERSITÉ**
de Paris
2018 - 2024

Nature in the City: Green Hairstreak Corridor

A community effort to plant native host plants for the green hairstreak butterfly between parks where the species is currently found



Return of long-lost bees creating a lot of Presidio buzz



Peter Fimrite

March 29, 2019

Updated: March 29, 2019 8:25 a.m.



San Francisco Biodiversity Program & Policy



[Biodiversity Goals](#)

[Background and Need](#)

[Citywide Biodiversity Policy](#)

[City Departments & Their Public Commitments](#)



SF Biodiversity Vision 2020

Thanks to all who joined us for this event!

The Yerba Buena Chapter of CNPS is honored to have hosted "SF Biodiversity Vision 2020" and we are grateful for the enthusiastic collaboration by all of you who made it so interesting and fun for us.

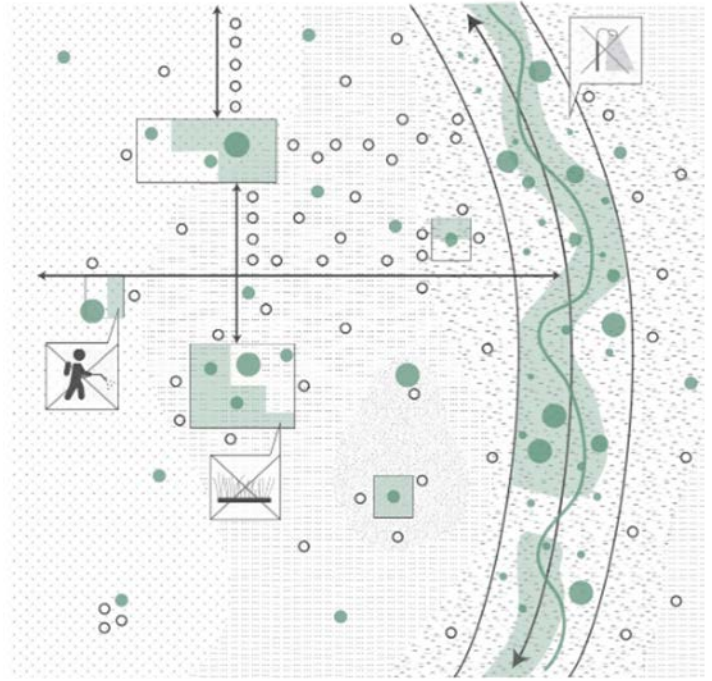
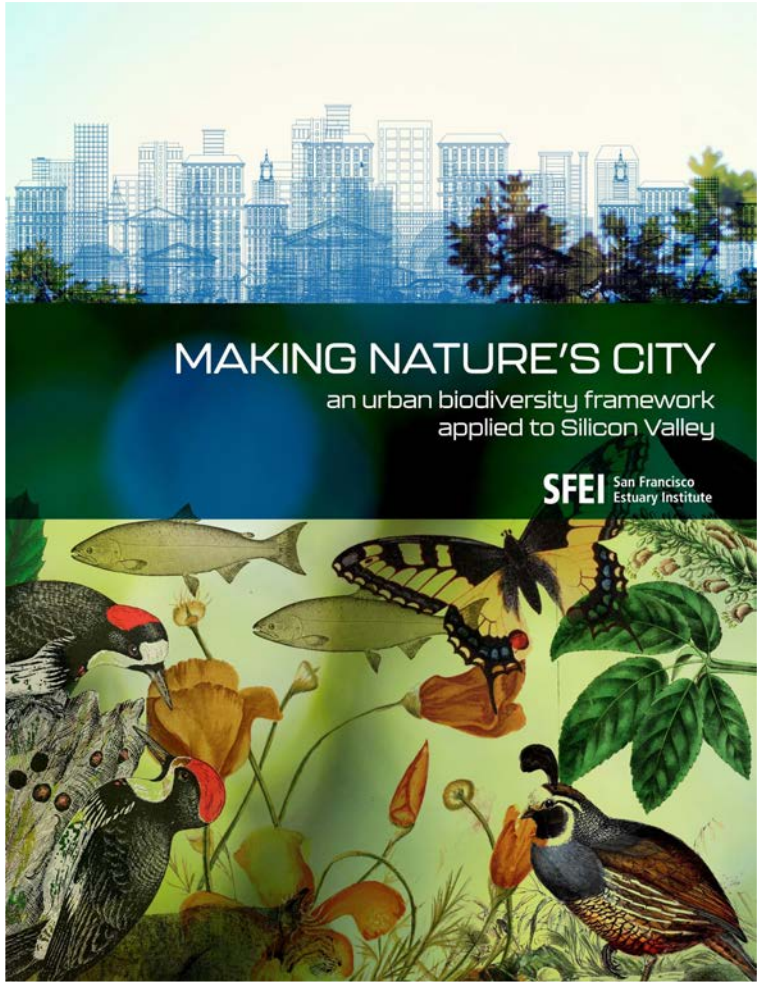
"SF Biodiversity Vision 2020" [Brainstorm session results](#) here

Ready to dig a little deeper?

Please check out our chapter's [SF Biodiversity Resource Page](#)

Continue the Conversation: Join the BiodiversitySF Forum

One of the ideas presented at the event was the creation of a **Biodiversity forum** for our community to share future ideas, agency and community meeting details, information related to biodiversity, best practices, educational opportunities, and restoration and





Hidden Nature SF



land
water





For more information and updates, visit: hidden-nature.org

If you have questions or want to sign up for more information, email: laurens@sfei.org

