



A view of the Santiago Fire from Lake Mission Viejo in 2008.

Understanding Fire Impacts on Habitat Lands

By: Melanie Schlotterbeck, FHBP

Friends of Harbors, Beaches and Parks (FHBP) worked over the last year to evaluate fires in the Santa Ana Mountains and Laguna Coast. The fire perimeters, points of origins, causes, and fire frequency for all wildland fires, where data was available, were reviewed between 1914 and 2014. The Irvine Ranch Conservancy and Hills For Everyone completed similar studies for the Irvine Ranch lands and Chino Hills State Park respectively, but neither study covered these areas.

After assimilating the data for both geographies, the study found that the clear majority of fires are starting due to human activity. In other words, only one natural fire was recorded for the study areas in the span of 100 years, whereas the remainder of fires were caused (directly or indirectly) by humans.

While many believe our coastal sage scrub and chaparral ecosystems “need” fire to survive—that simply isn’t true. The truth is fires do offer some plants the opportunity to release seeds, open seeds, begin regrowth, etc. But when fires burn too frequently these same plants are sapped of their stored energy and do not have enough energy left to regenerate after frequently occurring wildfires.

Scientific studies reveal that a more normal fire regime burns every 30-150 years. What the FHBP study shows is that portions of the Santa Ana Mountains are burning every seven months and every five years in Laguna Coast. Fire frequencies in both areas are unnatural and are causing native habitat lands to give way to non-native plants.

Non-native plants, grasslands especially, are dominating landscapes that burn too frequently. These plants grow faster, dry out earlier, and spread fire faster than our local native plants do. This “type conversion” of habitats means the reasons our lands were protected—for their natural resources—is severely impacted by wildfires.

FHBP relied mainly on geographic information system (GIS) data from the California Department of Forestry and Fire

(CalFire) and the Orange County Fire Authority (OCFA). There was only one fire conveyed to us through a personal account and this fire was missing from official records. These GIS layers were stored electronically and duplicate fires were removed from the fire statistics.

As part of this study, funded mainly by The Boeing Company, FHBP also reviewed weather data, seasonal trends, and water quality. While most fires tend to start over the summer months, the larger fires tend to burn during the Santa Ana Wind months in the fall.

Working closely with staff at OC Public Works, FHBP attempted to review the expected correlation between fires and post-burn water quality. Unfortunately, there was a lack of information that prevented us from understanding how a fire impacts water quality. This was mainly due to the lack of sampling locations, distance to the fire perimeter, and time span between the fire and water collection.

Two case studies, the devastating Laguna Fire of 1993 and the fast-moving Santiago Fire of 2007, were featured. Both fires were driven by Santa Ana Winds and destroyed millions of dollars worth of property and habitat lands.

As part of the study, FHBP included recommendations which could hopefully alleviate some of the fire starts. Many fires seem to be generated along roadways. Some ideas are directed toward agencies, while others are for residents to implement. FHBP will continue its work to ensure our habitat lands are protected in perpetuity for the benefit of future generations. Hopefully, by quantifying in this study what is actually happening on the ground, decision makers and agencies can make more informed decisions about putting more houses and people in harms’ way.



Provided by Gene Felder

Laguna Fire (1993)



DRAFT

A Green Vision for Orange County...

This parcel-level map is the result of an ongoing collaborative project between Friends of Harbors, Beaches, and Parks and local conservation and community organizations. It is a work in progress and intended for use as a general planning tool only.

Acquisition Opportunities

- Active Conservation Project
- Potential Conservation Land

Other Land Designations

- Public Conservation Land
- Private Conservation Land
- Public Not Protected
- Easement / H.O.A. Land
- Golf Course / Cemetery
- Landfill
- Military Land
- Utility Land

Other Map Layers

- Nature / Education Center
- Stream Corridor
- Sacred Site
- County Boundary
- Watershed Boundary
- Highway

Data compiled from a variety of sources including First American Title, with input from OC Parks; the California GAP Program at the University of California, Santa Barbara; the California Resources Agency - Legacy Project (2003); the Cities of Break, Irvine, and San Juan Capistrano; and the California Protected Areas Database. © FHBP 2000-2015. All Rights Reserved.



Detailed descriptions of the categories used in this map can be obtained from the Friends of Harbors, Beaches, and Parks website at: www.FHBP.org.

Projection: Lambert Conformal Conic
Datum: North American 1983
Last Update: September 2015

Project Updates

Esperanza Hills, Above Yorba Linda (Map #1)

Nature has told us that the hills east and north of Yorba Linda adjacent to Chino Hills State Park are prone to ferocious fires. They have burned three times. Last time, in the 2008 Freeway Complex Fire, existing residents barely got out with their lives. Houses did not fare as well since 287 were damaged or destroyed. Recently, the OC Board of Supervisors approved 340 houses there. Residents are horrified at the water that will be wasted permanently irrigating man-made slopes, and by the danger of inadequate roads

that gridlocked in 2008. Residents organized into a group called Protect Our Homes and Hills and has sued the County, City, and developer. Though the project is not within Yorba Linda limits, the City proposed allowing the main access road through city parkland to help the developer out. Learn more at: www.ProtectYorbaLinda.com.



Banning Ranch, Newport Beach (Map #2)

The California Supreme Court agreed to hear an appeal from the Banning Ranch Conservancy. This Court only agrees to hear 5% of cases referred to them, so this is a huge victory—and also the beginning of a tough fight. The Conservancy needs funds to help with this endeavor. Additionally, the California Coastal Commission is holding its hearing on the proposed Banning Ranch development on October 7th or 8th. Join us to show the Commissioners that the residents

oppose the massive development. The Conservancy is providing free transportation to the hearing—seat reservations required. There is also a letter on our website, asking the Commissioners to save Banning Ranch as open space. Go online to sign it and learn more at: www.BanningRanchConservancy.org.



Aliso Canyon, Laguna Beach (Map #3)

On Earth Day 2015, the Orange County Transportation Authority closed escrow on 151 acres in Aliso Canyon at the southern end of Laguna Beach. This land borders Aliso & Wood Canyons Wilderness Park and provides important connections between adjoining lands. The property includes trails with breathtaking views of the coast. Due to language in the City's General Plan the trails were deemed public long ago and that designation carries over to the new owner, so access is available. These lands

have significant habitat and species on them, which is important for the Authority because the lands are mitigation for freeway impacts under Renewed Measure M (a 1/2 cent sales tax measure). Friends of Harbors, Beaches and Parks was the lead negotiator to get \$243.5M for conservation. Learn more: www.FHBP.org.



Marine Habitats, Coastal OC (Map #4)

California's coast is one of our most treasured resources, central to our state's identity. In order to protect the sustainability of our marine ecosystems, California was first in the nation to establish a network of Marine Protected Areas (MPA). Similar to national parks on land, MPAs were established to protect and restore habitat and promote the health of marine ecosystems. The south coast MPA network was designated in 2012. MPAs now cover 15% of marine habitats from Point Conception to Mexico. Baseline

monitoring for the south coast is complete. This monitoring creates a benchmark, inside and outside MPAs for ecological and socio-economic conditions. The benchmark also provides a reference to assess MPA performance and inform adaptive management as part of a five year review.



Coast to Cleveland Connection, Irvine (Map #5)

Good news first! The housing market upswing may accelerate 5 Point Communities' Fall 2018, date to break ground on the crucial Central Reach of the corridor. It will be a feature of the Great Park Neighborhoods development in Irvine on the closed El Toro base near the 5 and 405 freeways (the "El Toro Y"). The developer has begun growing native cactus for future habitat use in the corridor. Now some bad news: although Orange County built a significant section of the corridor north

of Irvine Blvd., they are now proposing a massive residential development—970 dwelling units, including six story buildings—immediately adjacent to the corridor on both sides. Protecting the wildlife from people, pets, light, and noise will be extremely challenging. Learn more: www.WildlifeCorridor.org.



Coyote Hills, Fullerton (Map #6)

Acquisition negotiations between Chevron and the City of Fullerton will culminate in a public hearing for Chevron's Tract Map Application in late October 2015. This Application will be contingent on an Acquisition Agreement. The public is urged to attend the information session and hearings. If approved, a parcel of West Coyote Hills will be immediately credited to the City to expand the existing Bob Ward Nature Preserve. Chevron's steep pricing combined with an aggressive acquisition deadline pose

high risk for saving all of West Coyote Hills as a park. If funds cannot be raised in time, Chevron has the option to develop the remaining lands. Friends of Coyote Hills is working closely with the City to fundraise and recently received a \$1 million matching grant toward acquisition. Learn more: www.CoyoteHills.org.



The Fire Statistics



Bob Hunt

By: Melanie Schlotterbeck, FHBP

This article provides a brief summary of the results of the 2015 Fire Study. Both study areas are included.

The Santa Ana Mountains Study Area includes lands generally bounded on the north by the 91 Freeway, the east by the 15 Freeway, the south by Camp Pendleton and the west by the Santiago Canyon Road and the 241 Toll Road.

The data show that there are four areas in the Santa Ana Mountains that have burned frequently—along the 241 Toll Road, Santiago Canyon Road, and Ortega Highway (Highway 74). The areas that are prone to burning most frequently are the roadway edges. There is one inexplicable exception to this—a small remote portion of the San Mateo Wilderness in the Cleveland National Forest.

This Study Area found 144 fire perimeters and 38 points of origin totaling 164 separate fires that occurred between 1914 and 2014. The smallest fire is less than one acre and the largest is over 69,400 acres. Average fire size is 4,144 acres. The main known cause of fires is arson (11 fires). The two most prevalent fire months are: July (20 fires) and September (17 fires).



The Laguna Coast Study Area includes lands generally bounded on the north by the 405 Freeway, on the east by the Cities of Aliso Viejo and Laguna Woods, on the south by Pacific Coast Highway (Highway 1), and on the west by MacArthur Blvd.

The data show that there are no extreme hotspots in the Laguna Coast as they relate to fire frequency. Only a few areas have even burned multiple times, based on the data in our possession. Though there are fewer fires in this Study Area, it appears the places most prone to burning are along the roadway edges.

This study includes 21 fire perimeters and eight points of origin totaling 22 separate fires that occurred between 1914 and 2014. The smallest fire is less than an acre and the largest is over 14,330 acres. Average fire size is nearly 820 acres. The two main known causes of fires include: arson and powerlines (3 fires each). The two most prevalent fire months are: August (5 fires) and September (4 fires).

Having this well-documented history is important to future decisions and fire prevention efforts.

Report Recommendations



Melanie Schlotterbeck

By: Melanie Schlotterbeck, FHBP

Because we now know the areas most likely to burn and where fires most likely start, FHBP has provided several suggestions for possible adoption by the U.S. Forest Service, State Parks, OC Parks, Irvine Ranch Conservancy, regional non-profits, cities, decision makers, and/or transportation and fire agencies. We acknowledge that these recommendations may require an increase in expense and/or staffing. FHBP is able to provide outreach and education as well as information to the public and decision makers that may provide the impetus for implementing some or all of these recommendations. It is likely that recurring fire-fighting costs and damage to the habitats and homes far outweigh implementation costs.

General Recommendations (Excerpts)

- To understand the details about wildland fires, fire agencies should determine, when possible, the exact cause and ignition location of a fire (arson, vehicle, fireworks, etc.).
- Removal of invasive exotic plants such as *Arundo donax* from the watershed.
- Reduce fire frequency along roadways by reducing ignition opportunities. Brush clearance increases non-native plant growth and therefore increases fire ignition and spread. Weed mats have been successfully used along nearby Highway 71.
- Promote improved fire resistance and code upgrades for existing older hillside homes.

Santa Ana Mountain Recommendations (Excerpts)

- Stop approval of new houses at the Wildland-Urban Interface and in Very High or High Wildfire Hazard Severity Zones.
- Increase fire patrols or FireWatch presence on high fire danger days along the key roads.
- Continue to engage the Fire Safe Council to increase knowledge and understanding.

Laguna Coast Recommendations (Excerpts)

- Utilize the parking areas and Nix Nature Center for information on fire prevention.
- Consider creation of a FireWatch program in this area and/or a Fire Safe Council to engage residents.

Visit our website, www.FHBP.org, to download the Study and review the suite of recommendations made.

Fire & Water Quality



Joel Robinson

By: Melanie & Claire Schlotterbeck, FHBP

FHBP also investigated fire impacts to watersheds, including water quality. Under normal circumstances, a natural area will manage the precipitation it receives with subsurface and surface flows. Tree canopy, surface vegetation, leaf litter, etc. slow the movement and allow for absorption. As long as infiltration into the soil exceeds the amount of precipitation, the subsurface flow will dominate.

When a fire removes vegetation, the ability to deal with precipitation and retain moisture is reduced. Studies conducted by the University of Wyoming determined the volume of runoff can increase by 30% after a fire and erosion impacts from wildfires occur up to 100 miles from the burn.

We worked closely with the County of Orange Public Works Department (OC Public Works) to understand water quality impacts post-fire. From the online OC Environmental Resources Data Portal and archived sample history, we reviewed the water quality monitoring data in Orange County's two Regional Water Board areas of jurisdiction: the Santa Ana Region (North and Central Orange County) and San Diego Region (South Orange County).

County staff recommended a review of data from the county-wide stormwater monitoring program, specifically: bioassessment and mass emissions. Though we sifted through data from tens of thousands of samples for each monitoring point, we were unable to find a direct correlation between water quality and a fire. While the fire likely had an impact on the watershed and water quality, the span of time between the data collection and the fire date was too great to draw any correlations (direct or indirect). This was likely a result of when the sample was collected, when the fire occurred, and when the next sample was collected.

Another tool also available to us through the county-wide stormwater monitoring program implemented by OC Public Works is the Index of Biotic Integrity (IBI). The IBI score is a tool that was designed to help stormwater programs determine a link between anthropogenic influences and biological activity within receiving waters in urbanized areas. Water Reports charted the IBI scores for the San Diego Watershed and outlines the clear link between the Santiago Fire and lower IBI scores. This was the only direct water quality impact found because we otherwise lacked the data.

Fire & Climate Change



Provided by Laguna Beach Fire Department

By: Claire Schlotterbeck, FHBP

John Muir had it right 150 years ago when he said, “When we try to pick out anything by itself, we find it hitched to everything else in the universe.”

Our lovely little planet has been given a very dire diagnosis. If you got a scary diagnosis from 97% of the doctors who studied your case, you may wish to believe the other 3% who don't think it is so serious. Yet, if your life depended on taking action to get well, you would likely listen to the 97%.

If one just watched the news you would think there really is a debate over the science. That has been settled. Even most ordinary people know that. According to Scientific American, “The latest surveys show that 89% of Democrats, 79% of Independents, and 70% of Republicans already believe global warming is happening and is at least partly caused by human actions.” Climate change is here and people know even if certain politicians don't like the diagnosis.

Climate change is caused by natural events. That said, it is being greatly accelerated by human activities. In short, it is about burning so much fossil fuel that the byproduct of the burning (greenhouse gasses) is accumulating and heating the planet. In the warm up, we are also changing the physical world for all of the plants and animals that have evolved alongside of us. The warming planet changes the weather which becomes more unpredictable, more extreme. Recent symptoms include Hurricane Sandy (so strong, so far north and so late in the season), last winter's huge snow fall in Boston and our drought in the west. Sea level rise is already happening and we have climate change refugees from the Maldives. With warmer and fewer storms, there is less snowpack to supply our water needs.

The drought is also drying up our forests, making them more vulnerable to fires. We then use water to put out the fires so we have even less water for daily uses. As forests burn, they lose their capacity for carbon sequestration. Healthy forests store carbon dioxide—a greenhouse gas. Burned forests release carbon. So the cascade of impacts spirals on.

We got away with rampant pollution for 150 years and the planet has come to collect on the abuse. We can either be the ostrich generation who stuck our heads in the sand or we can set about getting the planet healthy for our grandchildren.

We need to change the way we live, painful but true. We need leaders who will deal with the diagnosis.

*Friends of Harbors, Beaches, and Parks (FHBP)
works to protect the natural lands, waterways,
and beaches of Orange County. Learn more at:*

www.FHBP.org



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Parks vs. Preserves

By: Melanie Schlotterbeck, FHBP

The types of natural lands available in Orange County are immense. From the national, state, county, and local governments to non-profit conservation organizations, park districts, and joint powers authorities—the land ownerships vary greatly. Each owner has its own set of values and reasons the lands were protected. Often these are encoded in legal agreements.



Melanie Schlotterbeck

All together, these various owners manage 133,865 acres of conserved land within Orange County, including hundreds of miles of trails for residents and visitors to enjoy. Each of these lands was acquired with a specific set of conditions on the land. For example, in the Cleveland National Forest, U.S. Forest Service has a special designation for sensitive and intact habitats called Wilderness Areas (i.e. the San Mateo Wilderness Area). In these areas, people are simply visitors and access is highly restricted. Another example is the State Park system, which has a Preserve designation for its most biologically important lands. Here, impacts to the natural land and types of activities allowed are restricted. The same applies to the County parks as they have their own special designations as well. In other cases, when the land transferred to a land manager, the previous owner may have put conditions for use on the land that are recorded as easements or deed restrictions.

To the general public, there may be no obvious distinction between lands owned by one agency versus another, but there are distinctions and sometimes there are restrictions on use. It is up to you, the park visitor, to know the rules of the land and what types of uses and when they are (or are not) permitted.

Sometimes recreational visitors want complete access to any lands owned as park or natural land. While some of the county's regional parks allow for a wide variety of recreational uses, there are some places that were simply preserved to allow for the natural processes to continue without interruption by humans. In other instances, some of these lands may be mitigation for impacts from projects—projects like freeway expansions or housing developments. As mitigation, the lands are to remain protected for their habitat value and if the land's condition gets degraded, restoration work must be done.

Just like our libraries and museums, parks have visiting hours too. Please obey all rules to keep everyone safe.

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