Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Bactrocera spp. Fruit Fly Cooperative Eradication Program

Los Angeles County, California

Environmental Assessment, July 2022

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Abbreviations and Acronyms Used in This Document

Abbreviation or Acronym	Meaning
B.	Genus *Bactrocera*
CC	Climate change
CDFA	California Department of Food and Agriculture
CFR	Code of Federal Regulations
CH_4	Methane
ChE	Cholinesterase
CNDDB	California Natural Diversity Database
CO_2	Carbon dioxide
EA	Environmental assessment
EO	Executive Order
ESA	The Endangered Species Act
EXTOXNET	Extension Toxicology Network
FAST	Federal Automotive Statistical Tool
FEMA	Federal Emergency Management Agency
FFEIS	USDA-APHIS' November 2018 environmental impact statement for cooperative fruit fly control programs
FIFRA	The Federal Insecticide, Fungicide, and Rodenticide Act
GE	Genetically engineered
IPaC	Information for Planning and Consultation
IPM	Integrated pest management
LAWA	Los Angeles World Airports
MAT	Male attractant technique
MB	Methyl bromide

Abbreviation or Acronym	Meaning
ME	Methyl eugenol
MOU	Memorandum of Understanding
MT	Metric ton
MWh	Megawatt hour
N_2O	Nitrous oxide
NEPA	The National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPIC	National Pesticide Information Center
NRHP	National Register of Historic Places
OFF	Oriental fruit fly, *B. dorsalis*
SHPO	State Historic Preservation Officer
spp.	Species (plural)
U.S.C.	United States Code
USCB	U.S. Census Bureau
USDA-APHIS	U.S. Department of Agriculture, Animal and Plant Health Inspection Service
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WEF	Water Education Foundation

1 Purpose and Need for the Proposed Action

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (USDA-APHIS) is considering actions that will assist in the eradication of *Bactrocera* spp. in California. Fruit flies in the *Bactrocera* genus are not native to the United States; their ongoing detection in or near U.S. ports of entry presents a risk to cultivated and naturally-occurring plant hosts in the United States.

The genus includes approximately 500 species, many of which are known or believed to have the potential to damage a diverse array of important crops (Weeks et al. 2012). *Bactrocera* spp. of concern to the United States include:

- Asian fruit fly, *B. invadens*
- Carambola fly, *B. carambolae*
- Chinese citrus fruit fly, *B. minax*
- Guava fruit fly, *B. correcta*
- Olive fruit fly, *B. oleae*
- Oriental fruit fly, *B. dorsalis* (OFF)
- Peach fruit fly, *B. zonata*
- Queensland fruit fly, *B. tryoni*
- Solanum or Malaysian fruit fly, *B. latifrons*

The majority of *Bactrocera* spp. are native to Southeast Asia, Australia, and the South Pacific (Weeks et al. 2012). OFF spread rapidly through the Near East and Africa, and threatens to colonize areas of the Western Hemisphere. Two *Bactrocera* spp. (OFF and *B. latifrons*) are already established in Hawaii; they pose an ongoing threat to host plantlife on the U.S. mainland. Detections of OFF in California and Florida since 2010 show increasing numbers of potential sites for this pest's establishment; there is also the threat from new OFF haplotypes (N. Mullaly, personal communication, 22 June 2022). A third species, *B. oleae*, is established in commercial olive production and ornamental plants in California, threatening all fruit-bearing olive plantings in the region (USDA-APHIS 2022a).

The trigger for a U.S. federal *Bactrocera* spp. quarantine occurs either at confirmation of a breeding population, or when there is capture of two to eight wild flies within a certain radius during one life cycle, or (see species particulars in Table 1). Eradication is initiated prior to reaching a federal quarantine. (USDA-APHIS 2020).

Between June 21 and June 25, 2022, fourteen male OFF were found in Los Angeles County (see Table 2) (USDA-APHIS 2022b). The number, timing, and location of the June 25 OFF detections triggered Federal participation in a new regulatory quarantine and pest eradication program for the North Hills region, involving a portion of Los Angeles County. This would be the 42nd OFF quarantine in California history and the 24th OFF quarantine within Los Angeles County (N. Mullaly, personal communication, 29 June 2022); all previous quarantines ended with successful eradication of the invading OFF population. So far in 2022 California has detected single OFF in multiple locations of the state; prior to June 25 the detections were insufficient to trigger a federal quarantine. California Department of Food and Agriculture (CDFA) authorities consider the

North Hills OFF outbreak a serious agricultural threat and because they cannot rely exclusively on State and local funding to control invasive fruit fly populations, they contacted USDA-APHIS.

Table 1. Cooperative Fruit Fly Emergency Response Triggers.

Pest species	Trigger for Delimitation	Duration of Delimitation (i.e. number of generations per single fly find)	Trigger for Eradication	Trigger for Quarantine
Bactrocera dorsalis (oriental fruit fly) Other *Bactrocera* spp. responding to ME: *B. zonata* (peach fruit fly), *B. correcta* (guava fruit fly), etc.	1 fly	2 generations	2 flies within a 3 mile (4.8 km) radius during 1 life cycle	If ALL finds are >4.5 miles (7.2 km) from commercial host production area: 8 flies (either sex) within a 3-mile radius during 1 life cycle. --- If any find is <4.5 miles (7.2 km) from commercial host production area: 6 flies within a 3-mile radius during 1 life cycle.
Other *Bactrocera* spp. that do not respond to ME: *B. latifrons* (Solanum fruit fly), *B. albistrigata* (white-striped fruit fly), etc.	1 fly	3 generations	2 flies within a 3 mile (4.8 km) radius during 1 life cycle	2-5 flies within a 3 mile radius during 1 life cycle
Mated female of any genus and species of fruit fly presumed or known to be mated to a wild male; a larva or pupa	1 mated female or immature stage	3 generations	1 mated female or immature stage	1 mated female or immature stage

Source: USDA-APHIS 2020

Table 2. OFF Detections in Los Angeles County as of 25 June 2022.

Fly #	Detection Date	Confirmed Date	Host	Trap Type	City	County
1	06/21/22	06/22/22	Orange	Jackson	North Hills	Los Angeles
2	06/24/22	06/27/22	Orange	Jackson	North Hills	Los Angeles
3-12	06/25/22	06/28/22	Fig	Jackson	North Hills	Los Angeles
13-14	06/25/22	06/28/22	Lemon	Jackson	North Hills	Los Angeles

Source: USDA-APHIS 2022b

OFF is a destructive agricultural pest in many parts of the world. It has a long history of being a serious pest of tropical and subtropical fruits in Southwest Asia and most of the Pacific Islands. OFF was first found in Hawaii during the mid-1940s. Worldwide, OFF has been recorded infesting at least 478 fruit and vegetable species, a few of which are apricot, avocado, banana, citrus, coffee, fig, guava, loquat, mango, roseapple, papaya, passion fruit, peach, pear, persimmon, pineapple, surinam cherry, and tomato (Weems et al. 2016). OFF adults can travel 30 miles in search of food and breeding sites; one female OFF can lay 1,000 to more than 3,000 eggs in her lifetime. These abilities allow OFF to infest new areas quickly, and make OFF establishment potentially disastrous to agricultural production in regions where host plants are grown (Weems et al. 2016; CDFA 2018, 2004). Although OFF is not known to be established in California, new infestations are detected on almost an annual basis since it was first identified in California in 1960. Reintroduction is most often due to infected fruits and vegetables brought across the border without proper inspection. *Bactrocera* spp. can produce many generations in one year (Weeks et al. 2012). OFF has a four-stage life cycle: egg, larva, pupa, and adult. Breeding is continuous, with several annual generations. An adult OFF lives 90 days on average; developmental stages may be extended by periods of cool weather (CDFA 2018; Weems et al. 2016).

1.1 Requestor's Goal

CDFA seeks to eradicate *Bactrocera* spp. from the State of California. CDFA seeks funding and other federal support needed to eradicate the North Hills OFF outbreak.

1.2 Agency Authority

USDA-APHIS cooperates with States and U.S. territories in implementing pest control programs that prevent the spread of exotic fruit flies to uninfested areas of the United States. Our[1] authority for pest control and grower support programs is the Plant Protection Act (Title 4 of the Agricultural Risk Protection Act of 2000, 7 United States Code (U.S.C.) §§ 7701–7786). Various sections authorize operations to control insect pests (§ 7714); conduct pest detection, surveillance (§ 7721), and inspections (§ 7731); compile information, conduct enforcement investigations (§ 7732), enter into agreements (§ 7752), transfer funds (§ 7772); and to use emergency measures to prevent the dissemination of plant pests new to, or not widely distributed throughout, the United States (§§ 7715, 7721). In particular, the Secretary of Agriculture may cooperate with State authorities or other persons in the administration of programs for the improvement of plants, plant products, and biological control organisms (§ 7751(d)).

In connection with an emergency in which a plant pest or noxious weed threatens any segment of the agricultural production of the United States, the Secretary may transfer from other appropriations or funds amounts as the Secretary considers necessary to be available in the

[1] In this document, uses of "we" and "our" refer specifically to USDA-APHIS.

emergency for the arrest, control, eradication, and prevention of the spread of the plant pest or noxious weed, and for related expenses (§ 7772(a)).

After a comprehensive review of existing and potential action alternatives, USDA-APHIS published an environmental impact statement (FFEIS) in November 2018 for our fruit fly cooperative control programs (USDA-APHIS 2018a). The FFEIS addresses technological and scientific advances made in the 17 years since publication of our first cooperative fruit fly program environmental impact statement (USDA-APHIS 2001), and incorporates feedback received during the public comment period. This environmental assessment (EA) incorporates by reference the contents of the FFEIS in its entirety.

This EA analyzes the environmental consequences of alternatives considered for eradication of a *Bactrocera* spp. population, and analyzes modifications proposed for the existing program. USDA-APHIS is making this EA available to the public, will consider comments received, and will review the program, updating the NEPA analysis and supporting documentation as necessary.

We prepared this document to comply with the provisions of the National Environmental Policy Act of 1969 (NEPA, 42 U.S.C. §§ 4321 *et seq*.), NEPA implementing regulations (40 Code of Federal Regulations (CFR) parts 1500-1508), and USDA-APHIS' implementing procedures (7 CFR parts1b and 372) for the purpose of evaluating the potential effects of the proposed action on the human environment. Human environment means comprehensively the natural and physical environment and the relationship of present and future generations of Americans with that environment (40 CFR § 1508.1(m)).

Our fruit fly chemical risk assessments (USDA-APHIS 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2003) discuss and comprehensively analyze the eradication measures being considered for implementation in the potential program area. In this document, the "program area" is everywhere inside the quarantine boundary, including eradication treatment cores and regulatory control zones. This EA incorporates the fruit fly chemical risk assessments by reference in their entirety. (Environmental documentation for USDA-APHIS' fruit fly control programs is available online via the following links: USDA-APHIS fruit fly control program environmental documentation and USDA-APHIS GE control applications for plant health.)

USDA-APHIS and cooperating agencies communicate to interested parties the potential for implementation of a pest emergency program to affect the quality of the human environment. The public involvement process for fruit fly emergency programs typically includes notices to industry, public meetings, and door-to-door interviews with growers and residents. Further, USDA-APHIS coordinates with federal, state, county and Tribal governments and international trade partners to provide advance notice to people who may be affected by program activities. Environmental documentation is available upon request. Where a choice of actions is possible, USDA-APHIS adjusts the local provisions of the cooperative pest control program to mitigate potentially adverse effects to affected entities and avoid conflict with local law or requirements.

Working cooperatively with States and U.S. territories, USDA-APHIS identifies and eradicates *Bactrocera* infestations. To date we have cooperated with the California, Florida, New York, Puerto Rico, and Texas Departments of Agriculture on exotic fruit fly control programs.

2 Alternatives

USDA-APHIS considered three action alternatives:

1. No action
2. Quarantine and commodity certification
3. Eradication using an integrated pest management (IPM) approach that includes multiple eradication treatment options ("preferred alternative")

These alternatives and their component methods were considered in the FFEIS (USDA-APHIS 2018a) as they related to emergency eradication efforts. Under all of these alternatives, trapping and host surveys for *Bactrocera* spp. would continue as a way to measure baseline pest populations. All of the alternatives would involve the use of regulatory controls and chemical pesticides to facilitate the timely elimination of the identified *Bactrocera* infestation. For all alternatives, the standard operating procedures and mitigation measures would remain as described in the prior analyses. Alternatives may select pesticides from among those analyzed in the FFEIS (USDA-APHIS 2018a). The preferred alternative would use pesticide eradication treatments only in certain locations based on the site-specific needs; applications would be targeted, and ground based.

All pesticide use in USDA-APHIS programs complies with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1910 as amended (7 U.S.C. Chapter 6). To fulfill obligations under this statute, we ensure that a full pesticide registration (i.e., a Section 3 Registration), a special local need registration (i.e., a Section 24(c) Registration) and/or an emergency quarantine exemption (i.e., a Section 18 Exemption) are approved by the U.S. Environmental Protection Agency (USEPA) for each pesticide use pattern in fruit fly program applications.

2.1 No Action

Under the no action alternative, there would be no federal efforts to eradicate *Bactrocera* spp. or restrict expansion of a *Bactrocera* population from an infested area. Federal involvement may end, for example, if there is a change in federal regulation, loss of program funding, or lack of sufficient resources to eradicate an invasive quarantine pest. In the absence of a federal effort, fruit fly quarantine and control would be left to state and local governments, grower groups, and individuals. Expansion of the infestation would be influenced by any quarantines and controls, by the proximity of host plants, and by climatic conditions.

In cooperation with USDA-APHIS, CDFA monitors for *Bactrocera* spp. in counties of California where there are susceptible host plants and a conducive environment for fruit fly establishment. CDFA initiates delimitation and eradication programs in locations where the number of *Bactrocera* spp. detections are not yet sufficient to trigger quarantine regulatory actions. The state program intensifies surveys in the neighborhood of each confirmed *Bactrocera* detection until triggering a quarantine or the immediate fruit fly threat ends.

Under the no action alternative, USDA-APHIS would not fiscally support control actions that are part of CDFA's detection trapping program and research. (For details about the State's program to control OFF, please use the following link: CDFA OFF project information.)

2.2 Quarantine and Commodity Certification

Alternative 2 combines a quarantine with commodity treatment and certification, as described in 7 CFR § 301.32. Regulated commodities harvested within the quarantine area would not be allowed to move outside the quarantine boundary prior to treatment with prescribed applications and certification for movement outside the area.

Intensive quarantine enforcement activities would be necessary for areas with a large infestation. Activities could include safeguarding of local fruit stands, mandatory baggage inspection at airports and seaports, and judicious use of road patrols and regulatory checks. Under this alternative, the interstate movement of regulated commodities would require the issuance of a limited permit contingent on commodity treatment. The grower or shipper would need to comply with specific conditions to minimize the pest risk and prevent the spread of *Bactrocera* spp.

Eradication methods that may be used under Alternative 2 include treatment with (1) regulated chemicals, (2) cold, (3) vapor heat, and (4) irradiation. Treatments of certain produce, as a requirement for certification and shipping, would occur in USDA-APHIS inspected and approved facilities. Program chemicals and their use would be as described in the FFEIS (USDA-APHIS 2018a). Chemical treatments could include ground-based foliar application of bait sprays or fumigation of harvested regulated commodities with methyl bromide (MB).

2.3 Eradication Using an IPM Approach (Preferred Alternative)

USDA-APHIS and CDFA propose a cooperative program to eradicate the North Hills OFF population. Eradication using an IPM approach was selected as the preferred alternative by considering biological effectiveness combined with acceptable levels of intrusion on the public, cost, and effects to the environment (USDA-APHIS 2001). Our cooperative *Bactrocera* eradication programs in California rely on surveillance, targeted chemical applications, and host fruit removal.

The proposed quarantine for the North Hills OFF Program covers a portion of Los Angeles County (map in Appendix A). Program areas and activities would center on confirmed *Bactrocera* detection sites. USDA-APHIS and CDFA would expand surveillance, quarantine, and treatment boundaries as necessary when there are additional detections of *Bactrocera* spp.

All our cooperative programs to eradicate exotic fruit fly populations use established procedures and treatments (USDA-APHIS 2018a, 2004). The following subsections briefly review existing program components (USDA-APHIS 2018a, 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2003) and updated information.

2.3.1 Delimitation

To delimit an infestation and monitor posttreatment OFF populations, placement of McPhail food bait traps and Jackson pheromone lure traps occurs in varying densities throughout the program area. The McPhail trap is an invaginated glass flask baited with Torula yeast and borax in water. The cardboard Jackson sticky trap is baited with the attractant methyl eugenol (ME) mixed with a pesticide (naled). The baited Jackson trap is strongly attractive to sexually maturing males, while the baited McPhail trap is attractive to both sexes of the fly. Mass trapping involves program use of natural or synthetic lures to attract fruit flies to traps, sticky panels, wicks, or fiberboard squares. Killing occurs either by fruit flies becoming stuck to a sticky substance, by

drowning, or by being exposed to minute quantities of pesticide. Servicing of the North Hills OFF Program traps would occur on a regular schedule for a period equal to three generations beyond the date of the last OFF find (CDFA 2022a; USDA-APHIS 2018a).

As part of the ongoing surveillance inside the quarantine boundary, program personnel examine fruit of potential host plants within a 100-meter radius around each *Bactrocera* detection site for the presence of eggs and larvae (USDA-APHIS 2022b). Suspect *Bactrocera* are sent to a program laboratory for further examination. Sampled fruit is disposed of as described in the FFEIS (USDA-APHIS 2018a).

2.3.2 Eradication Treatments

For many species of exotic fruit flies, there are no effective nonchemical control or eradication techniques (USDA-APHIS 2001). Other less effective techniques may not allow CDFA or USDA-APHIS to achieve eradication of *Bactrocera* infestations. Consequently, USDA-APHIS' eradication strategies for the proposed *Bactrocera* cooperative eradication program rely on combinations of the following mitigation measures:

- no action
- regulatory quarantine treatment, and movement control of host materials and regulated articles
- host survey for evidence of breeding *Bactrocera*
- host removal
- eradication chemical applications
- mass trapping to delimit the infestation and monitor post-treatment *Bactrocera* populations

"No action" may be the only reasonable alternative for sensitive sites within a proposed program area. Eradication efforts would occur only along the perimeter of sensitive sites to prevent expansion of a *Bactrocera* population. USDA-APHIS considers sites as sensitive when there are biological or regulatory reasons to avoid treating an area. Examples include the unavoidable presence of children, critical habitat, or threatened or endangered species in the area (USDA-APHIS 2018a).

Male attractant technique (MAT) is the standard eradication treatment practice for *Bactrocera* spp. Up to 600 small, gel-like spot applications per square mile are applied to utility poles and street trees six to eight feet above the ground. Traps may be used where there are no suitable inanimate surfaces to place the spot applications. MAT applications are repeated every two weeks for one life cycle if no quarantine is triggered (typically two to three months), and for two life cycles if a quarantine is triggered (typically four to six months). Life cycle durations are dependent on temperature (CDFA 2022a). The MAT compound contains a male attractant (ME) that is mixed with a small amount of the pesticide spinosad. The spot applications attract and kill male OFF looking for an opportunity to breed and feed on the attractant. OFF females go unmated and, therefore, offspring are not produced, effectively eradicating an OFF population. For the North Hills OFF Program, MAT would be deployed for nine square miles around each OFF detection site (USDA-APHIS 2022b).

Indication of a breeding *Bactrocera* population triggers fruit removal from host plant species growing at or near the detection site. Upon confirmation of any immature OFF find, program personnel would remove all potential host fruit from the property within a 100-meter radius of each detection site (USDA-APHIS 2022b).

Confirmation of a mated female or breeding OFF population also leads to application of a foliar bait treatment to host trees and plants as a targeted, ground-based spray to potential host plants within a 200-meter radius of each detection site (USDA-APHIS 2022b). This highly localized spot spray consists of an organic formulation of spinosad (pesticide), and protein hydrolysate (a food bait). Protein hydrolysate is a common food bait used in fruit fly treatments, increasing the efficacy of chemical applications and reducing the area of pesticide treatments needed for control (Prokopy et al. 1992). Attraction to the protein hydrolysate (which can be derived from plants or yeast), gives pest fruit flies a lethal exposure to the pesticide that is mixed with the attractant. The North Hills OFF Program would repeat treatments every one to two weeks for one life cycle of the targeted fly species (typically two to three months for OFF, depending on local temperatures) (USDA-APHIS 2022b; CDFA 2022a).

We recognize that, in areas receiving repetitive treatments with only the insecticide spinosad, there may be development of chemical resistance in surviving fruit fly populations (Guillem-Amat et al. 2020; El-Gendy 2018; Kakani et al. 2010; Hsu and Feng 2006). Alternating spinosad treatments with treatments containing a different insecticide may be necessary to eradicate resistant fly populations. Spinosad resistance has occurred under laboratory conditions and exists in wild fruit fly populations in the State of Hawaii (Hsu et al. 2021). Spinosad tolerance rather than resistance was demonstrated in wild olive flies in California. As of June 2022, USDA-APHIS has no evidence of *B. dorsalis* resistance to spinosad treatments made in the conterminous United States (R. Johnson, personal communication, 2022-06-23).

To prevent the spread of fruit flies via infested fruits and vegetables, USDA-APHIS routinely urges people never to move any fresh produce from any property under quarantine. Public outreach is done using local media and other forms of communication. Fruits and vegetables may only move outside the quarantine after they are processed (i.e., canned, baked, frozen, or preserved). Waste produce must be double-bagged in plastic bags for municipal garbage collection (CDFA 2022b; USDA-APHIS 2015). CDFA routinely informs the public that host fruit removed from properties by program personnel is taken to a landfill for burial using regulatory compliance protocols (CDFA 2022a).

Establishment of the quarantine boundary will ensure any host material that leaves the program area is free from infestation by OFF. Harvested regulated materials may be treated in enclosed areas or containers with a prescribed method: cold temperature, vapor heat, irradiation, or MB fumigation (USDA-APHIS 2018a, 2004). Harvested fruit may be moved out of the quarantined area under a temporary certificate to enclosed facilities for packing only after the fruit receives a USDA-APHIS-approved treatment on the premise. If a *Bactrocera* quarantine spreads to federally protected sites or Tribal lands, then program treatments would be modified to meet the needs of those sites.

Before eradication actions begin, program officials inform the public and potentially effected industry via press releases, meetings, and other forms of communication appropriate for the recipients. USDA-APHIS notifies our foreign trading partners as we identify exotic fruit fly outbreaks. Notification of residents whose property would be treated, or whose fruit must be

removed, occurs at least 48 hours in advance of treatment or fruit removal (CDFA 2022a). Given the potential for effects to commercial production, owners or operators of groves, packing sheds, nurseries, vendors, and industry operations handling host material would be notified of quarantine locations and treatment scheduled in their area.

3 The Affected Environment and Potential Effects to the Environment

NEPA requires federal agencies to assess the potential effects of their proposed actions on the human environment prior to making decisions. This EA analyzes the potential environmental consequences of alternatives considered for a program of *Bactrocera* spp. control and eradication in California. For the purpose of our NEPA analysis, the affected environment is considered to be within Los Angeles County. We considered the site-specific characteristics of the potential program area with respect to the way implementation of the preferred alternative might affect environmental quality, human health, and nontarget species (including threatened and endangered species). Potentially sensitive sites are accommodated through the selection of eradication methods and mitigation measures.

3.1 Affected Environment

This section briefly discusses pertinent physical and demographic features of the potential program area in the North Hills OFF Program. The background information provides context for specific program areas as they arise.

3.1.1 Land and Demographics

Many OFF-host plant species are grown in North Hills and adjacent regions, which increases the potential environmental impact of the current infestation. Commercial production of host commodities (grapes) occurs about 32 miles from the June 2022 OFF detections (USDA-APHIS 2022b). The location of those detections determines the quarantine boundary for the North Hills OFF Program (map in Appendix A).

Los Angeles County had a census population of 10,014,009 and a land area of over 4,059 square miles in 2020 (USCB 2022). It has the largest population of any county in the United States and accounts for approximately 27 percent of California's population (County of Los Angeles 2022). People from more than 140 countries reside in the county, which contains the city of Los Angeles and some 90 other incorporated cities. The county encompasses two of the Channel Islands and contains a group of inland valleys, a coastal plain separated by low mountains that are interspersed with steep passes, an arc of still higher mountains, and a long seacoast. Nearly half of the county is taken up by mountain chains—most of them running east-west—that have an ongoing history of earthquakes, firestorms, and mud slides. Three waterways cross the county: the westward-flowing Santa Clara River in the north; the Los Angeles River in the south, extending from the San Fernando Valley east and south to the Pacific Ocean; and the San Gabriel River, which rises from the San Gabriel Mountains in the north and flows south to the ocean. There are numerous government jurisdictions—municipal, county, special district, regional, state, and federal. Agriculture plays a role in the regional economy; principal crops include nursery and greenhouse plants, vegetables, fruits, nuts, seeds, and hay. Global shipping, tourism, and manufacturing are important economic drivers; there are a wide range of financial and business services, high-technology manufacturing, craft and fashion and hospitality industries, academic institutions, athletics and entertainment venues, as well as music and film production. The city of Los Angeles and the county are interwoven geographically, culturally, and economically (Encyclopaedia Britannica 2022).

The city of Los Angeles reported a population of 3,898,747 in 2020 and a land area of over 469 square miles (USCB 2022). It is the second most populous metropolitan area (after New York City) in the United States. Los Angeles covers a broad coastal plain situated between mountains and the Pacific Ocean. Floods have periodically inundated large parts of the city. In the early 21st Century the combined seaports of Los Angeles and Long Beach accounted for nearly two-thirds of the West Coast's foreign import cargo and, in terms of volume, jointly constituted the third largest harbour in the world (Encyclopaedia Britannica 2002). Los Angeles World Airports (LAWA) is responsible for the management, supervision, and control of all airports and airport facilities under the jurisdiction of the City of Los Angeles. LAWA airports are: Los Angeles International Airport, Ontario International Airport, Van Nuys Airport, and Palmdale Regional Airport. These airports are among the busiest in the world (City of Los Angeles 2022a).

The city is composed of a series of widely dispersed settlements loosely connected to downtown. As it grew, Los Angeles encircled five independent cities—Beverly Hills, Culver City, West Hollywood, Universal City, and San Fernando. Original city districts and annexed communities—Boyle Heights, Chinatown, Little Tokyo, Hollywood, San Pedro, Encino, and Watts, for example—still retain their community names and identities. The city doesn't recognize smaller units, so neighborhoods have vague and informal boundaries (Encyclopaedia Britannica 2022).

North Hills, CA is described on public websites as a city, a community, a neighborhood, a suburb, or a village – for the purposes of this EA we refer to North Hills as a community in the city of Los Angeles. North Hills has a population of 62,256 (Niche.com 2022). The community is a blend of residential developments and commercial space, in the heart of the San Fernando Valley (Hoffman 2004). Major roads through the proposed OFF program area include State Route 118 and Interstate Routes 5, 210, and 405. Van Nuys Airport is located next to North Hills.

Climate in the region is semiarid or Mediterranean. There are two seasons: a dry and moderately warm spell lasting roughly from April to November, and a wet, moderately cool, but rarely frigid period extending from November to April. Temperatures can differ widely depending on location. The warm weather and the bowl-like alignment of the hills in the city of Los Angeles provide ideal conditions for photochemical smog, resulting in periods of poor air quality. Earthquakes have been observed throughout the area's recorded history (Encyclopaedia Britannica 2022; Los Angeles Almanac 2022).

The National Agricultural Statistics Service reports a variety of land uses for the area under consideration for the North Hills OFF Program. Land in the proposed treatment area is primarily developed for residential and commercial uses. Land within the quarantine boundary may be used for agricultural production, but the closest OFF-host commercial production occurs 32 miles west of the June 25 detection sites (USDA-APHIS 2022b). Agriculture in the proposed quarantine has included commercial cultivation of known OFF-host spp. such as grapes; growers also cultivated alfalfa, winter wheat, and other hay/non-alfalfa crops (see Appendix B for data source).

Most of the acreage within the proposed *Bactrocera* quarantine is developed (about 48,905 acres, including roughly 2,470 acres of developed open space). There are also about 51 acres of barren land, 190 acres of open water, and 2,087 acres of shrubland/wetland/forest/grass/pasture (see Appendix B for data source). Table 3 shows the proximity of the North Hills OFF Program area to other land sites of potential concern.

Table 3. Select Land Sites in Relation to the Proposed OFF Program Area.

Designated Land Use	Site	Location
Certified Organic Production and Farmer's Markets	No organic operations or farmer's markets	In the proposed treatment area
	15 organic operations and 2 farmer's markets	Within the proposed quarantine
Local, State, and Federal Lands	7 public parks and recreation areas	In the proposed treatment area
	59 public parks and recreation areas	Within the proposed quarantine
Airports and Seaports	No airports or seaports	In the proposed treatment area
	Van Nuys Airport; Whiteman Airport; no sea ports	Within the proposed quarantine
	Bob Hope Airport	09 miles
	Los Angeles International Airport	28 miles
	Long Beach Airport	44 miles
	Port of Hueneme	37 miles
	Port of Los Angeles	37.5 miles
	Port of Long Beach	38 miles
	Port of San Diego	124 miles
	Port of Oakland	326 miles
	Port of San Francisco	327 miles
Cemeteries; NRHP Property	No cemeteries or NRHP property	In the proposed treatment area
	2 cemeteries and 4 NRHP properties	Within the proposed quarantine
Tribal Land	Ceded lands. Tribe Named in Land Cessions, 1784-1894: Buena Vista; Car-I-se; Cas-take; Hol-mi-uk; Ho-lo-cla-me; Se-na-hu-ow; So-ho-nut; Te-jon; To-ci-a; Uva. Present Day Tribe: Nonfederally Recognized Indian Groups	Within the proposed quarantine and in the proposed treatment area
Schools, Public and Private	25 elementary, middle, and high schools	In the proposed treatment area
	149 schools, elementary through university level	Within the proposed quarantine
Nearest International Border	Mexico	144 miles from proposed treatment area; 142 miles from proposed quarantine boundary

Source: See Appendix B for data sources.

3.1.2 Water Resources

Ground water and surface water resources in the proposed program area may be affected by weather events, such as drought and hurricanes. There is a projected decline in natural water resources in the State; to promote water conservation and to reallocate water resources California governors periodically call for voluntary reductions in water use or set water use limits. In 1985, California enacted legislation to protect the potability of its ground water; potential contaminants are identified, and pesticide use restrictions are implemented for vulnerable areas (State of California 2021a). The State and Regional Water Boards assess water quality data for California's waters every two years to determine if they contain pollutants at levels that exceed protective water quality criteria and standards (State of California 2021b). The proposed *Bactrocera* program calls for highly localized chemical applications in designated properties, and treatment buffers around all sensitive areas, including all waterbodies. This method of application is designed to minimize the potential for introduction of program chemicals to local water resources.

North Hills is located in the Los Angeles water district. Much of the surface water used for the region's electric power, irrigation, and drinking water is transported via the Los Angeles Aqueduct or imported via the Metropolitan Water District. The city of Los Angeles relies on water supplied via the State Water Project, the Colorado River, groundwater, and other water systems (WEF 2022).

Five watersheds (a portion of land whose runoff drains into a creek, river, or other body of water) occur in the proposed program area. Water located beneath the proposed treatment area for the North Hills OFF Program, or surface water that drains off of it, may enter the following watersheds: Lower Pacoima Wash, Bull Creek, and Tujunga Wash-Los Angeles River (data source in Appendix B).

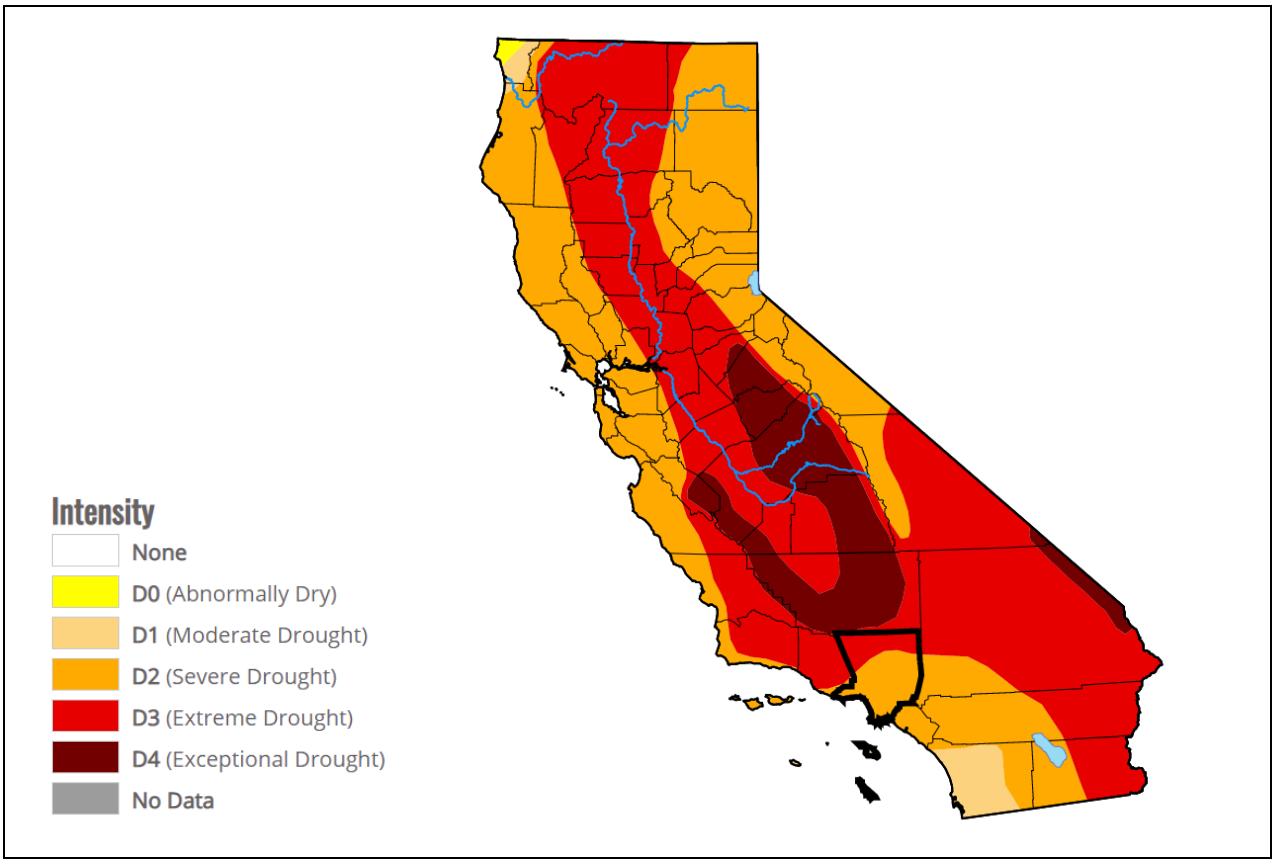
Riverine wetlands and freshwater pond wetlands occupy over 188.8 acres of the proposed treatment area; in the quarantine there are 2,205.6 acres of lake, riverine, freshwater forested/shrub, freshwater pond, and freshwater emergent types of wetland (data source in Appendix B). Table 4 shows distances between the proposed OFF program and water resources of potential concern.

Table 4. Select Water Resources in Relation to the Proposed OFF Program Area.

Type of Resource	How Many	Location
Impaired Waters	1 segment	In the proposed treatment area
	5 segments	Within the proposed quarantine
Waterbodies	Los Angeles River; 4 unnamed rivers and streams	In the proposed treatment area
	Los Angeles River; Van Norman Lakes; Balboa Lake; Los Angeles Aqueduct; Aliso Canyon Wash; Limekiln Canyon Wash; East Canyon Channel; Pacoima Wash; Caballero Creek; Bull Creek; Limekiln Canyon Wash	Within the proposed quarantine

Source: See Appendix B for data sources.

We consider recurring drought to be an important influence on the North Hills OFF Program's affected environment. The climate in the proposed program area is variable; droughts of notable duration and/or intensity occur periodically. In 2021, the Secretary of USDA felt it necessary to designate most of California as a primary disaster area due to drought (Canon 2021). At the outset of July 2022, most of the western United States was drier than normal (National Drought Mitigation Center 2022). Climate change is extending and intensifying California's wildfire season (State of California 2022a); over 3,300 wildfires have occurred so far in 2022 (State of California 2022b). Although no active wildfires are currently nearby, severe drought conditions exist across the proposed North Hills OFF Program area (map in Figure 1) (National Drought Mitigation Center 2022). Drought is having short and long term impacts in the state (Table 5 lists impacts resulting from different drought intensities). Wildfire damage, lack of potable water, hot weather, and a threatened power grid are ongoing issues for California residents. So far this year 395,000 acres of farmland are lying fallow due to water shortages; an estimated 60,000 acres of almond trees and 15,000 acres of vineyards will be removed statewide as well. Californian producers may have no cost-effective recourse but to burn crops lost to drought or shifting consumer markets, further impacting air quality (Briscoe 2022). Due to ongoing drought conditions a statewide emergency regulation to conserve water and preserve the State's water supply went into effect on January 18, 2022. On June 10, 2022, another statewide emergency regulation requiring water conservation in urban areas became effective. Both will remain in effect for one year from their effective dates, unless the State Water Board decides otherwise (State of California 2022c). USDA-APHIS' fruit fly control program activities are designed to have minimal to no impact to water supply and water quality.



Source: National Drought Mitigation Center, 2022.

Figure 1. Map of recent Drought Status in California, Los Angeles County outlined.

Table 5. Drought Impacts Specific to California.

Intensity	Historically observed impacts
D0	• Soil is dry; irrigation delivery begins early. • Dryland crop germination is stunted. • Active fire season begins. • Winter resort visitation is low; snowpack is minimal.
D1	• Dryland pasture growth is stunted; producers give supplemental feed to cattle. • Landscaping and gardens need irrigation earlier; wildlife patterns begin to change. • Stock ponds and creeks are lower than usual.
D2	• Grazing land is inadequate. • Producers increase water efficiency methods and drought-resistant crops. • Fire season is longer, with high burn intensity, dry fuels, large fire spatial extent; more fire crews are on staff. • Wine country tourism increases; lake- and river-based tourism declines; boat ramps close. • Trees are stressed; plants increase reproductive mechanisms; wildlife diseases increase. • Water temperature increases: programs to divert water to protect fish begin. • River flows decrease; reservoir levels are low, and banks are exposed.
D3	• Livestock need expensive supplemental feed, cattle and horses are sold; little pasture remains, producers find it difficult to maintain organic meat requirements. • Fruit trees bud early; producers begin irrigating in the winter. • Federal water is not adequate to meet irrigation contracts; extracting supplemental groundwater is expensive. • Dairy operations close. • Fire season lasts year-round; fires occur in typically wet parts of State; burn bans are implemented. • Ski and rafting business is low, mountain communities suffer. • Orchard removal and well drilling company business increase; panning for gold increases. • Low river levels impede fish migration and cause lower survival rates. • Wildlife encroaches on developed areas; little native food and water is available for bears, which hibernate less. • Water sanitation is a concern, reservoir levels drop significantly, surface water is nearly dry, flows are very low; water theft occurs. • Wells and aquifer levels decrease; homeowners drill new wells. • Water conservation rebate programs increase; water use restrictions are implemented; water transfers increase. • Water is inadequate for agriculture, wildlife, and urban needs; reservoirs are extremely low; hydropower is restricted.

Intensity	Historically observed impacts
D4	• Fields are left fallow; orchards are removed; vegetable yields are low; honey harvest is small. • Fire season is very costly; number of fires and area burned are extensive. • Many recreational activities are affected. • Fish rescue and relocation begins; pine beetle infestation occurs; forest mortality is high; wetlands dry up; survival of native plants and animals is low; fewer wildflowers bloom; wildlife death is widespread; algae blooms appear. • Policy changes; agriculture unemployment is high, food aid is needed. • Poor air quality affects health; greenhouse gas emissions increase as hydropower production decreases; West Nile Virus outbreaks rise. • Water shortages are widespread; surface water is depleted; federal irrigation water deliveries are extremely low; junior water rights are curtailed; water prices are extremely high; wells are dry, more and deeper wells are drilled; water quality is poor.

Source: National Drought Mitigation Center, 2022.

3.2 Potential Effects Associated with the No Action Alternative

Under the no action alternative, uncoordinated or insufficient eradication efforts could result in the survival and establishment of *Bactrocera* spp. within the contiguous United States. If there are established *Bactrocera* populations we expect substantial economic effects to U.S. growers, processors, shippers, and consumers. *Bactrocera* feeding damages fruit and reduces harvestable yield, resulting in commodity scarcity, higher costs for production and purchase, agricultural land abandonment, and the temporary or permanent loss of domestic and foreign markets for U.S. grown commodities.

Lack of federal action would place the burden of fruit fly control on the State of California and members of the agricultural industry. While the State is likely to retain surveillance and trapping activities, members of the agricultural industry are likely to increase pesticide use to protect their crops. Crop producers may experience a reduced capability to comply with organic crop production practices. The likelihood of potential pesticide impacts on consumers would increase. Increased use of pesticide to protect host plants would risk faster development of pesticide resistance in *Bactrocera* spp. *Bactrocera* populations would continue to increase and disseminate until achieving an environmental equilibrium with host availability.

3.3 Potential Effects Associated with the Quarantine and Commodity Certification Alternative

This alternative would reduce the human-mediated movement of *Bactrocera* spp. by preventing the transportation of uninspected host plant materials beyond the quarantine boundary. Under this alternative, USDA-APHIS expects resident pest populations would persist within the quarantine boundary. A persistent infestation threatens the survival of host species in California and may lead to fruit fly populations with increased resistance to pesticides. Any failure in quarantine actions could lead to *Bactrocera* establishment outside quarantine boundaries via natural spread or human-assisted transport. In response, new or expanded quarantine areas would be needed to contain pest populations. Ongoing surveillance outside of quarantine areas would be needed to identify and respond to natural spread.

We also expect there would be adverse effects to U.S. agriculture and the economy from an ongoing exotic fruit fly infestation in California. Commodity certification requirements would create a necessary additional layer of governmental presence in the marketplace. This situation could create inspection jobs; however, trade would be restricted until the produce was inspected and certified for sale. Infested crops would be destroyed, reducing the volume of marketable fruit. Crop loss due to uncontrolled fruit fly populations is likely to lead to commodity scarcity and higher costs for U.S. consumers. A persistent *Bactrocera* population that is not under an official control program is likely to jeopardize U.S. trade relations. Implementation of this alternative is likely to increase the marketing and transportation costs passed to consumers.

3.4 Potential Effects Associated with the Preferred Alternative

This section considers potential effects to the human environment that are associated with implementation of the preferred alternative. This section also summarizes our findings on the potential effects associated with the eradication measures in the preferred alternative.

Eradication using an IPM approach, is the preferred alternative that would employ any or a combination of the following measures:

- no action
- regulatory treatments and movement control
- host survey
- host removal
- chemical control
- mass trapping to delimit and monitor *Bactrocera* presence

No Action (described under Alternative 1) is an option at sensitive sites where other components of the integrated management system cannot be accommodated. Sensitive sites are locations where unique features of the site could lead to significant environmental impacts. Eradication of *Bactrocera* from sensitive sites would be difficult, requiring ongoing commitments of personnel and resources to contain the infestation within site boundaries. Failure to contain these pests would likely lead to the *Bactrocera* population's expansion into previously uninfested areas of California and the surrounding region.

The quarantine actions (described under Alternative 2) are expected to (a) reduce *Bactrocera* spp. movement beyond treated areas, and (b) reduce human-mediated transport of *Bactrocera* in host-plant materials to areas outside the quarantine. Any *Bactrocera* spp. eradication efforts would be managed by, and wholly under the control of, CDFA. Consequently, infestations within the quarantine boundaries would not be directly addressed by federal action. Successful eradication of exotic fruit fly populations by the State's action under this alternative could lead to short-term reductions in the overall area under quarantine, but this would not diminish trapping and survey activities.

Fruit fly program risk assessments included a thorough analysis of trap application technology and use (USDA-APHIS 2018c, 2018f, 2018g). USEPA approval of new materials and chemical formulations precedes USDA-APHIS revision of trap application information. Our review of the treatment protocols found the small quantity of chemical formulations used as fruit fly pheromone lures and food baits is unlikely to result in adverse environmental or human health

risks, due to low toxicity in animal testing, high target specificity, and low exposure to humans and the general environment (USDA-APHIS 2018c, 2018e, 2018f, 2018g, 2014, 2003; Reilly, 2003).

USDA-APHIS expects the traps approved for *Bactrocera* spp. to pose little threat to nontarget plants and animals when used as directed. We anticipate the small number of nontarget arthropods that may be caught in program traps would have a minimal and transitory effect on the overall populations of their species. Program traps are placed out of the reach of the public so individuals living in the treatment areas are not likely to be exposed to chemical compounds used in the traps. To inform the public, traps display the appropriate warning on the label for the level of chemical risk. There is minimal exposure risk to applicators during trap preparation and placement based on the required use of personal protective equipment and adherence to proper application procedures. Depending on the frequency of trap placement and monitoring, there could be minimal disturbance of the soil surface or vegetation from vehicular and foot traffic.

The traps and chemical treatments administered by our fruit fly programs pose minimal risk to the human environment, as determined in the FFEIS (USDA-APHIS 2018a) and associated impact and risk assessments (USDA-APHIS 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2003). The prescribed uses of bait spray, spot applications, and MB would likely result in shorter periods of quarantine and/or commodity certification requirements, potentially reducing effects to agriculture and trade-related industries.

3.4.1 Effects Associated with Chemical Treatments

USDA-APHIS seeks to minimize the risk of environmental contamination to air and water associated with chemical treatment of *Bactrocera* spp. A controlled release of chemicals into the environment is inherent in the limited program use of pesticides.

Environmental Fate

The environmental fate of a chemical depends on the combination of the chemical's properties with the prevailing environmental characteristics (temperature, pH, dilution, etc.). Both direct contact with waterbodies and runoff of program pesticides into water are highly unlikely due to the targeted application methods, the use of distance buffers, and the environmental fate of the pesticides selected for use in the program. The methods used to mitigate for adverse effects to waterbodies are described in the FFEIS (USDA-APHIS 2018a). Our fruit fly program operations allow unique sites to depart from standard operating procedures while providing effective pest control. Typically, the selection of control methods and use of specific mitigation measures accommodates sensitive sites in pest program areas.

We compared the active ingredients in the treatment options with respect to their potential to affect the human environment and found the combined risk for all the pesticides in the preferred alternative is minimal. A well-coordinated eradication program using IPM technologies would result in the overall least use of pesticides. Taking no action, or limiting program actions to quarantine and commodity certification, would likely result in an expanding infestation. This would lead to more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse effects to human health and ecosystems. Implementation of Alternative 3, the preferred alternative, is likely to eliminate a *Bactrocera*

population more effectively than the other alternatives, and consequently, the program would make fewer pesticide applications over time.

The remainder of this section reviews the active ingredients in the prescribed pesticides by summarizing information in prior NEPA analyses and chemical risk assessments (i.e., USDA-APHIS 2018a, 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2007, 2003, 2002, 2001), but should not be considered encyclopedic. Please consult USEPA pesticide registration documentation for additional information.

- MB fumigation could be used as a commodity treatment prior to certification but will not be used as it is not an eradication treatment. This type of use would occur under a FIFRA Section 18 Quarantine Exemption and USDA-APHIS would meet all reporting requirements. Fumigation chambers vent the small quantities used to treat for *Bactrocera* spp. MB volatilizes into air from soil and water and is known to contribute to stratospheric ozone depletion. Volatilization of MB from surface soil is rapid, with a half-life ranging from 0.2 to 0.5 days. The degradation half-life of MB in soil ranges from 31 to 55 days. MB has a low affinity to bind to soils; however, it is not considered a major contaminant of ground water (NPIC 2000). The volatilization half-life for MB from surface water ranges from 3.1 hours to 5 days. The degradation half-life of MB in water ranges from 20 to 38 days, depending on temperature and pH.

- Naled degrades quickly in the environment to dichlorvos (a registered insecticide) and dichloroacetic acid via chemical hydrolysis and biodegradation. Studies show that naled dissipates rapidly with half-lives of less than two days under terrestrial, aquatic, and forestry field conditions. The dissipation is also rapid for dichlorvos. The presence of sunlight accelerates degradation with photolysis half-lives of 0.4 days (soil) and 4.4 to 4.7 days (aqueous). The bioaccumulation potential for naled and dichlorvos is expected to be low (USDA-APHIS 2018c, 2018f). Soil microbes break down most of the naled in the soil and, therefore, it should not present a hazard to ground water. The half-life of naled on foliage ranges from 2.3 to 2.5 days. Plants remove bromine from naled to form dichlorvos which may evaporate or be further metabolized (EXTOXNET 1996).

- Spinosad is not considered mobile in soil as it adsorbs strongly to soil particles and is unlikely to leach to great depths. Dissipation half-lives for spinosad in the field may last 0.3 to 0.5 days. It is photodegraded quickly on soil exposed to sunlight. Spinosad is quickly metabolized by soil micro-organisms under aerobic conditions and has a half-life of 9.4 to 17.3 days. Spinosad is not sensitive to hydrolysis, but aqueous photolysis is rapid in natural sunlight (half-life of less than 1.0 to 1.6 days) and is the primary route of degradation in aquatic systems exposed to sunlight. Under anaerobic conditions, the degradation rate is slower, between 161 and 250 days. Spinosad has a half-life of 2.0 to 11.7 days on plant surfaces. After initial photodegradation, residues are available for metabolism by plant biochemical processes. Effects from residues of individual treatments are no longer detectable in environmental substrates within a few weeks of application (USDA-APHIS 2014; Kollman 2003).

Additional chemical considerations

Attractants in USDA-APHIS fruit fly program treatments (i.e., fruit fly pheromone lures and food baits) minimally effect air, water, and land resources, based on USEPA-approved use patterns and the rapid degradation of the ingredients. In general, the environmental fate associated with the active ingredients (as described in subsection (a) forms the basis for any effects from the overall attractant. We take care to keep animals away from spray solutions containing food bait and toxic pesticides if animals might be attracted to a solution to drink it. In accordance with CDFA's National Pollutant Discharge Elimination System best management practices, the program establishes a 30-foot treatment buffer around all waterways. The program also delays foliar treatments if there is a 40% or higher chance of rain forecast to occur in the next 24 hours, or if wind speeds are over 10 miles per hour (D. Kelch, personal communication, 2021-10-01). USDA-APHIS follows all pesticide label and registered use requirements to minimize the potential for effects to the environment.

Overall, we expect limited potential for pesticide interaction or for multiple exposures. The North Hills OFF Program will coordinate with other pest programs in California to avoid any overlap of toxic eradication treatments.

- As of July 5, 2022, in addition to the OFF quarantine proposed for the North Hills region of Los Angeles County, there are no active fruit fly quarantines in California (CDFA 2022c). CDFA is working to eradicate *Bactrocera* and *Anastrepha* spp. detected in other locations before their populations reach quarantine levels (N. Mullaly, personal communication, 2022-07-05). Depending upon local jurisdiction, USDA-APHIS and state OFF programs may employ the same or similar chemical treatments to those described in this document.

- Under the preferred alternative, CDFA's OFF eradication activities in the North Hills region would be incorporated in USDA-APHIS' proposed OFF quarantine and eradication program for Los Angeles County. Current and future in-State *Bactocera* control programs could merge into one larger program area, depending on fruit fly dissemination and weather influences. We expect that cooperative program use of *Bactrocera* trapping and eradication actions in California counties would have beneficial effects: from the reduction in fruit fly populations causing damage to fruit, and from overall reductions in pesticide treatments.

- We considered implementation of the preferred alternative in the context of, and in conjunction with, other pest management projects that might occur in the program area (e.g., Japanese beetle, glassy-winged sharpshooter, diaprepes root weevil control efforts) (CDFA 2022c). USDA-APHIS does not expect significant additive or synergistic effects from pesticide use by these programs, due to differences in pesticide mechanisms of toxic action, targets for pesticide application, affected species and resources, and application timing. Certain pest control programs currently active in the proposed program area may apply the same or similar chemical treatments (including, but not limited to, naled or spinosad formulations and MB fumigation). State programs are requiring regulatory treatments: for Asian citrus psyllid in 29 counties, including Los Angeles County; for glassy-winged sharpshooter in 11 counties, including Los Angeles County; for *Bactrocera* and *Anastrepha* spp. in Alameda, Los Angeles, and Orange Counties (CDFA, 2022c; N. Mullaly, personal communication, 2022-07-01).

- CDFA is currently carrying out delimitation programs in 11 locations of the state (after confirmed detections of guava fruit fly, OFF, peach fruit fly, and sapote fruit fly); each survey's trapping grid is centered on detection sites. (N. Mullaly, personal communication, 2022-07-05). Whether or not there is an active federal quarantine for fruit flies in California, trapping and surveys for Bactrocera spp. and other exotic fruit flies continue under the State's fruit fly detection and monitoring program. Adverse environmental impacts have not been reported or are expected to occur from these ongoing actions.

- A previous cooperative fruit fly eradication program (also targeting OFF) was successfully completed in Santa Clara County, California; its quarantine ended on June 27, 2022 (USDA-APHIS 2022c). The most recent fruit fly cooperative eradication program involving Los Angeles County (targeting Medfly detected in San Bernardino County) was also successful; its quarantine ended on 19 June 2022 (USDA-APHIS 2022d). Chemical residues from cooperative fruit fly eradication programs degrade over time in the prevailing weather conditions in California, so it is highly unlikely that pesticide applications from past programs would have additive or synergistic effects with North Hills OFF Program applications.

Active ingredients for the proposed treatments

MB is a regulatory commodity treatment used to allow movement of *Bactrocera*-host materials outside the quarantined area. MB is an organobromine compound used as a broad-spectrum fumigant to control insects, mites, rodents, plant pathogens, nematodes, termites, and weeds. It can be used as a soil fumigant, as a post-harvest treatment of commodities, and for structural fumigation (USEPA 2008). Additional uses were removed because MB is an odorless, colorless gas that depletes the ozone layer in Earth's atmosphere, allowing increased ultraviolet radiation to reach the planet's surface. USDA-APHIS determined that use of MB fumigation as a fruit fly quarantine treatment poses negligible potential for additive or synergistic effects to the environment (USDA-APHIS, 2002, 2007). Currently, there is limited use of MB as a pesticide for certain agriculture, quarantine and pre-shipment purposes.

Naled is an organophosphate insecticide that would be used in the North Hills OFF Program's Jackson traps. It is also used as an insecticide for large-area mosquito control and as an acaricide to kill mites and ticks. Naled is registered to control blackflies and leaf-eating insects on a variety of fruits, vegetables, and nuts; it may be used in barns, greenhouses, and at processing plants. Naled has been used to treat dogs for nematode infestation (PubChem 2021; USDA-APHIS, 2018f).

Spinosad would be used in the prescribed gel spot applications and as a targeted foliar spray. It is a natural substance made by a soil bacterium that can be lethal to insects (NPIC 2014). As a neurotoxin, spinosad works by disrupting nicotinic acetylcholine receptors (USEPA 2016). It has other labeled food and non-food uses including the control of fire ants, beetles, caterpillars, termites, and thrips (USDA-APHIS 2014; Merchant, 2004). Implementation of the proposed OFF eradication program could lead to an increase in spinosad use and the possible overlap of program and non-program treatments.

We do not know the types or amounts of pesticide use by private entities in the proposed program area. Despite this, USDA-APHIS does not expect there to be significant additive or synergistic effects because of implementing the preferred alternative or its component treatment measures based on the very limited amount of pesticide used during this program. Under the preferred alternative, program pesticide applications are designed to avoid overlapping treatment cores, and to prevent nontarget exposure until pesticide residues degrade. Therefore, we did not identify any reasonably foreseeable future actions that could result in incremental increases in environmental effects.

3.4.2 Human Health

The principal concerns for human health are related to potential program use of chemical pesticides. Factors that affect the human health risk include pesticide toxicity and the potential for human exposure. Pesticide toxicity varies with the mode of action. These factors are influenced by the use pattern and the environmental fate for each prescribed pesticide. The analyses and data of the FFEIS and its associated human health risk assessments indicate exposures to pesticides from normal program operations are not likely to result in substantial adverse human health effects. (Refer to the FFEIS (USDA-APHIS 2018a) and the human health sections of the supporting risk assessments (USDA-APHIS 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2003) for additional information on risks to human health.)

USDA-APHIS determined that risks to human health from the proposed pesticide treatments are minimal, based on the low probability of exposure to people and the environment by adherence to label requirements, the use of personal protective equipment, favorable environmental fate and effects data, and the program's proposed use pattern.

- MB binds to DNA, fats, and proteins (NPIC 2000). Human exposure to high concentrations of MB can cause central nervous system and respiratory system failures and can harm the lungs, eyes, and skin. Should treatment by MB fumigation be indicated, adherence to USEPA label restrictions and application in enclosed areas or containers would protect applicators and the public from risk of exposure to the fumigant (USDA-APHIS 2007, 2002).

- Naled is a cholinesterase (ChE) inhibitor that disrupts the nervous system. Symptoms of ChE inhibition in humans include nausea, dizziness, and confusion. Exposure to high doses of naled, which could occur during an accident or major spill, can result in respiratory paralysis and death. Program application methods (inside traps or in spot applications) and adherence to label requirements substantially reduce the potential for exposure. Adverse health risks to workers are not expected when applications are made according according to label directions. Adverse health risks to the general public are not expected based on the requirements for public notification as specified on the label, and the placement of traps out of the normal reach of children (USDA-APHIS 2018f).

- Spinosad targets the nervous system of invertebrates. Contact may irritate human skin and eyes (NPIC 2014) but overall spinosad has low acute toxicity for oral, dermal, and inhalation routes of exposures. USEPA studies indicate spinosad is unlikely to be neurotoxic, mutagenic, carcinogenic, or immunotoxic in mammals. Ground-based targeted applications of spinosad (as a foliar spray) by our fruit fly eradication

programs are unlikely to pose adverse risks to human health, due to spinosad's low toxicity as well as the low risk of exposure when applications are made in accordance with USEPA label instructions (USDA-APHIS 2014, 2003). After pesticide application, the potential for the public's exposure is low because spinosad does not persist in the environment (USDA-APHIS 2014; Kollman 2003).

Of the alternatives considered, a well-coordinated eradication program using IPM technologies results in the least use of chemical pesticides and minimizes their potential to adversely affect human health. Workers who mix, load, and apply pesticides, and members of the public who live in or visit a *Bactrocera* spp. eradication area, are the potentially exposed human populations. Exposure of program workers is not expected based on the proper use of personal protective equipment and engineering controls. Accidental exposure is the most likely route of exposure to program workers during pesticide mixing, loading, and spraying. The risk of accidental exposure is minimal because only certified applicators working with federal and state agencies or persons under their guidance, would handle chemicals in the North Hills OFF Program.

Pesticide exposure by the public is unlikely based on program adherence to pesticide label requirements and mitigations. We do not expect adverse health risks to the public because there is a notification process that occurs in advance of the treatment, ground-treatments are highly localized, and the program maintains restricted entry and post-harvest intervals. Public notification includes sharing information concerning program control actions via press releases and media announcements. Depending on the treatment area, either the County's agricultural commissioner, extension agent, or public information officer serves as the primary media liaison. Any resident with property to be treated would be directly contacted or be notified in writing at least 48 hours prior to treatment of the property. Program personnel also leave notices on property after treatment. The notices detail any precautions people should take and identify any intervals of time that should elapse before harvesting fruit on the property. USDA-APHIS and CDFA provide information about the program for distribution to property owners and residents, via translators and printed door hangers in multiple languages if available. The risks to the public associated with dietary consumption of fruit from treated plants are low, based on the program's removal of fruit in treated areas and the notification processes.

In addition, program site inspections ensure chemical treatments are not likely to affect humans and ecosystems. Trap placement and chemical applications may be rescheduled if strong winds or rainfall is forecast for the program area or nearby areas. These procedures reduce the potential for pesticide movement in water and air to nontarget locations. The destruction or relocation of traps and treatments due to weather events is unlikely to adversely affect the human environment because the amount of pesticide is diluted during the storm's water and air movement. The program establishes no-spray buffer areas to reduce the potential for pesticide drift and runoff. Traps would be incinerated in a wildfire. For these reasons, program operations are highly unlikely to affect soil and water features in the affected environment.

USDA-APHIS recognizes a small portion of the population may have greater than usual sensitivity to certain chemicals, and program treatments may pose heightened risks to these individuals. To mitigate these risks, program personnel will communicate with individuals identified as sensitive before making treatments to their properties and will notify the public before treating public-access areas.

3.4.3 Nontarget Species

For the no action alternative and the quarantine/commodity certification alternative, potential environmental effects on nontarget species could include loss of animal and plant life and habitat from unregulated pesticide use by the public, or from *Bactrocera* host damage.

Post-harvest treatment of potential OFF-host material (by MB fumigation, heat or cold treatment) would be performed indoors or in sealed containers, preventing exposure to nontarget species. The pre-harvest eradication actions used in Los Angeles County would be limited to removal of host fruits, targeted bait spray applications to host foliage, and placement of gel spot applications in order to control invasive OFF populations. These treatments would target OFF life stages in a manner that minimizes potential exposure and associated risks to nontarget species.

- Baits: The pheromones and food baits approved for our *Bactrocera* program traps and treatments may attract certain nontarget species, exposing them to the pesticide ingredient. When used in accordance with USEPA label requirements, the prescribed OFF trap and gel station baits (methyl eugenol, Torula yeast with borax) are expected to have only minimal, transient impacts on nontarget animal populations (USDA-APHIS 2018g). Protein hydrolysate is a common attractant used in fruit fly treatments, increasing the efficacy of chemical applications and reducing the area of pesticide treatments needed for control (Prokopy et al. 1992). OFF attracted to the protein hydrolysate receive a lethal dose of the pesticide spinosad that is mixed with the attractant. The protein hydrolysate selected for program use is expected to have minimal impacts to environmental quality based on its use pattern and rapid degradation; because of its low toxicity, impacts to nontarget species are unlikely.

- Naled is toxic to birds, terrestrial and aquatic vertebrates, and terrestrial invertebrates, including pollinators (USDA-APHIS 2018f). However, the potential exposure of aquatic or terrestrial species to the naled used in Jackson traps is expected to be low (USDA-APHIS 2018f).

- Spinosad has low to moderate toxicity to wild mammals and birds. Spinosad toxicity to fish is moderate, while aquatic invertebrates are more sensitive in acute and chronic exposures. Toxicity to terrestrial invertebrates is variable. Although highly toxic to honeybees and other sensitive terrestrial invertebrates the potential for exposure and risk from spinosad use is reduced based on the two proposed methods of application. Its use in MAT reduces exposure to nontarget invertebrates such as honeybees. MAT uses a gel-like material to mix with spinosad and a fruit fly attractant that is applied as a small dollop to structures such as utility poles. This application method will minimize exposure to honeybees and other sensitive invertebrate exposure. Spinosad use as a spray is directed to the target plant in a large spray droplet that contains a fruit fly attractant reducing exposure to honeybees and other terrestrial invertebrates. The large droplet size reduces the potential for off-site drift and does not completely cover the plant surface being treated when compared to broadcast applications that would use a smaller droplet size. Risks to nontarget fish and wildlife are anticipated to be negligible based on the proposed use pattern that would result in a low potential for exposure to most taxa. A favorable environmental fate profile and low toxicity to most nontarget organisms further reduces the risk to terrestrial and aquatic animals (USDA-APHIS 2014).

USDA-APHIS finds the program pesticides under the preferred alternative have a low potential for adverse effects to nontarget species. MB fumigation methods protect nontarget species by preventing exposure to this pesticide (USDA-APHIS 2007, 2002). When deployed according to label instructions, the delimitation and monitoring traps pose little threat to nontarget plants and animals. The small number of nontarget arthropods that may be caught in program traps would have a minimal effect on the overall population of their species (USDA-APHIS 2018f). Program performance of the prescribed heat/cold treatments, surveys and fruit removal will not have adverse effects on nontarget species.

Conservation areas in Los Angeles County provide important habitat for a wide variety of wildlife that cannot be seen anywhere else in the United States. The proposed program area in Los Angeles County contains state, county, and local parks such as Reseda Park, Lake Balboa, Anthony C. Beilenson Park, Sepulveda Bain Wildlife Reserve, Valley Glen Community Park, Wilbur Tampa Park and Wilbur Tampa Park Trail, Hansen Dam Park, Dr. Mario A. DeCampos Trail, and Carey Ranch Park. Sensitive sites could include irrigation canals, coastal wetlands, and salt lakes of potential ecological importance (data source in Appendix B). Program chemical applications would not occur at these sites or within refuges or other protected areas. Otherwise, program activities at these sites would include surveillance trapping and fruit stripping by hand if OFF detections occur.

Migratory Birds

Unless permitted by regulation, the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703–712) prohibits intentional take[2] of migratory birds or any part, nest, or egg of migratory birds.

Executive Order (EO) 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," directs federal agencies taking actions with a measurable negative effect on migratory bird populations to develop and implement a memorandum of understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) to promote the conservation the conservation of migratory bird populations. On August 2, 2012, USDA-APHIS and USFWS signed an MOU to facilitate the implementation of this EO.

More than 490 species of birds have been recorded in Los Angeles County (Garrett and San Miguel 2006). This region of California, which is part of the Pacific Flyway, is an important migration corridor providing suitable habitat for many bird species.

USDA-APHIS evaluated the proposed OFF program in terms of potential impact on migratory birds. Acute and chronic toxicity to birds from spinosad is low (USDA-APHIS 2014). Direct application of the prescribed spinosad bait to *Bactrocera* spp. host plants, or in spot applications, would not affect wild bird food sources, based on the localized, targeted nature of the applications. Birds would not be exposed to harmful concentrations of MB because the vented gas is rapidly dispersed and diluted in the air. Birds would not be exposed to naled inside Jackson traps. The proposed program would not involve removal or disturbance of any

[2] "Intentional take" means the unlawful pursuit, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner.

trees, shrubs, or other vegetation on the project site that could be used by birds. No purposeful take of any migratory bird is part of the proposed program.

Endangered Species Act

Section 7 of the Endangered Species Act (16 U.S.C. §§1531 et seq.) and its implementing regulations (50 CFR Part 402) require federal agencies to consult with USFWS and/or the National Marine Fisheries Service (NMFS) to ensure that their actions are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat. If listed species or critical habitat are present in the area and program activities may affect them, USDA-APHIS consults with USFWS and NMFS, as appropriate.

USDA-APHIS reviewed the OFF program area and proposed treatment activities for potential co-occurrence of federally listed species and critical habitat under USFWS jurisdiction to determine if any proposed program treatments may affect listed species or critical habitat. There are no federally-listed species that occur in the treatment areas (where spinosad foliar treatments or MAT would occur). In addition, insecticides will not be applied to bodies of water or undeveloped areas of native vegetation (CDFA 2022a). All treatment will be applied to residential properties, common areas within residential developments, non-agricultural commercial properties, and rights-of-way (CDFA, 2022a).

In the larger quarantine area where trapping would occur, there is critical habitat for three species (coastal California gnatcatcher, *Polioptila californica californica*; Santa Ana sucker, *Catostomus santaanae*; and southwestern willow flycatcher, *Empidonax traillii extimus*) (IPaC 2022). In addition, IPaC (2022) indicates that the California condor, *Gymnogyps californianus*; least Bell's vireo, *Vireo bellii pusillus*; Arroyo toad, *Anaxyrus californicus*; Riverdside fairy shrimp, *Streptocephalus wootoni*; and vernal pool fairy shrimp, *Branchinecta lynchi*; Braunton's milk-vetch, *Astragalus brauntonii*; California Orcutt grass, *Orcuttia californica*; Gambel's watercress, *Rorippa gambellii*; Lyon's pentachaeta *Pentachaeta lyonia*; marsh sandwort, *Arenaria paludicola*; Nevin's barberry, *Berberis nevinii*; slender-horned spineflower, *Dodecahema leptoceras*; and spreading navarretia, *Navrrettia fossalis*, may occur in the quarantine area. A review of the area using the California Natural Diversity Database (CNDDB 2022), indicated only coastal California gnatcatcher, yellow-billed cuckoo, least Bell's vireo, and slender-horned spineflower as occurring in the quarantine area. Trapping will have no effect on these species or any designated critical habitat. Traps are placed in areas that are easily accessible by road, and animals would not be attracted to or able to access the traps.

USDA-APHIS completed a programmatic consultation with NMFS for exotic fruit fly eradication programs in California (NMFS 2018). From the consultation, no-treatment buffers (see Table 6) for spinosad (foliar bait spray and MAT) and naled-baited Jackson traps were established that would be applied to waterbodies, including designated critical habitat, for certain species under NMFS jurisdiction. These no-treatment buffers are designed to protect listed fish from direct effects of program treatments, as well as any indirect effects resulting from impacts to prey items and habitat. However, USDA-APHIS used NMFS California species list datasets (see Appendix B for data source) to determine the listed species and designated critical habitat under NMFS jurisdiction in the OFF program area. No federally-listed species under NMFS jurisdiction or their critical habitats occur in the program area.

Table 6. No-Treatment Minimum Distances for Various Chemical Application Methods.

Chemical	Application Method	Application No-Treatment Buffer (in feet)
Naled	Jackson trap	10
Spinosad	Spot application	10
Spinosad	Foliar spot spray	30

Source: NMFS 2018

A complete administrative record of this review is available upon request. If the North Hills OFF Program area expands, additional species become federally-listed as threatened or endangered, or critical habitat is designated in the program area, USDA-APHIS will initiate consultation with USFWS or NMFS, as as necessary.

3.4.4 Other Aspects of the Human Environment

A lack of federal action ("no action") could result in adverse economic and public health impacts on affected producers and consumers, including decreased harvests, higher consumer prices, loss of local employment, reduced nutritional options, loss of market share, compromised mental and physical health, and loss of property. These reasonably foreseeable effects may occur to a lesser extent under the quarantine and commodity certification alternative. USDA-APHIS does not anticipate these types of adverse effects as a result of carrying out the preferred alternative's surveillance activities, trapping, and the program chemical applications.

Climate

Climate change (CC) refers to long-term shifts in average weather patterns that define the Earth's local, regional, and global climates. This includes changes in average daytime and nighttime temperature, precipitation, drought periods, periodicity of tornadoes and rainfall, polar ice melting, and ocean/sea level rise. Human-produced impact on global temperature (also known as anthropogenic global warming) may be avoided or reduced by government agencies through consideration of CC during the NEPA process. NEPA requires U.S. federal agencies to examine the reasonably foreseeable effects of a proposed action on the human environment (40 CFR § 1508.1(g)). Federal agencies comply with EOs 13990 ("Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis") and 14008 ("Tackling the Climate Crisis at Home and Abroad") by considering:

- the effects of CC on a proposed action,
- the potential effects of a proposed action on CC, and
- potential mitigation measures that could be applied to the proposed action.

Direct effects of CC on the proposed OFF eradication program include increased likelihood of introduction and modification of the incidence, prevalence, persistence, and locations of fruit fly outbreaks. Over time, biological modifications to *Bactrocera* spp. are highly likely to include more generations per year, increased reproductive rates, and populations that survive over

winter. Extreme precipitation and soil erosion coupled with overall drought increase the risk of crop exposure to heat events that reduce productivity. All these direct effects elevate risks to U.S. agricultural and natural resources.

Specific examples of impacts to program operations include: (1) extreme weather events may interfere with the servicing of traps and application of treatments, (2) higher temperatures and drought may reduce pesticide persistence in the traps triggering the need for shorter replacement intervals and increasing program costs, and (3) fruit fly program funding may be redirected to disaster relief and other emergency responses.

Pertinent findings from the USDA-APHIS Annual Energy Report for 2019 (USDA-APHIS, 2019a) are summarized in Table 7. This is the last "pre-COVID pandemic" year with available data on all USDA-APHIS activities, including contracted services. The electricity use in all buildings totaled 14,275.1 megawatts (MWh). There were zero emissions reported for fugitive fluorinated gases, on-site landfills and municipal solid waste facilities, and industrial process emissions. There were zero indirect emissions reported for purchased steam and hot water, and chilled water. There was no impact due to market-based renewable purchases. Carbon dioxide (CO_2) is the primary greenhouse gas (GHG) emitted through human activities (USEPA 2021); USDA-APHIS also monitors program activities for emissions of nitrous oxide (N_2O) and methane (CH_4) (see Table 7). While increased greenhouse gas (GHG) emissions from videoconferencing or media streaming during COVID-19 outbreaks could be attributed to agency activities, these emissions would likely occur during telework and are not likely to be part of future agency building emission estimates.

Our cooperative fruit fly eradication programs may use small, fixed-wing Cessna airplanes with IO-520 285 horsepower (213 kilowatt) engines to release sterile insects and to make aerial pesticide applications, as part of an integrated pest management program. No sterile insect releases are planned for OFF quarantines. No aerial pesticide applications are made in California for OFF quarantine (R. Johnson, personal communication, 13 July 2022). USDA-APHIS based its calculation of GHG emissions (due to Medfly and Mexfly program aviation) on the annual fuel quantity used by that type of aircraft (see Table 7).

Table 7. Summary of 2019 USDA-APHIS Reported GHG Emissions.

Categories	Total GHG in metric tons (MT) CO_2 equivalents[1]
Standard Operations: Total purchased electricity consumption in buildings	11,401.4
Standard Operations: Mobile Emissions from the Federal Automotive Statistical Tool FAST for petroleum (diesel and gasoline)	25,222.5
Non-Standard Operations: Mobile Emissions from the Federal Automotive Statistical Tool for high intensity operations	64.1
Total Biogenic CO_2 emissions	1,308.8
Total Agency Non-Aviation GHG Emissions	**37,996.8**
Total Standard Operations: vehicles and equipment (aviation gas and jet fuel)	**115.7**

Category	Fuel Used	Estimated GHG Emissions	Estimated GHG Emissions Values	Total GHG in metric tons (MT) CO_2 equivalents[1]
Fruit Fly	13,873.8 gallons	CO_2 = (8.31 kg/gal)(13,873.8 gal)(1000g/kg) +	115,291,300+	115.7
		N_2O = (0.07 g/gal)(13,873.8 gal)(298 factor to convert to CO_2) +	289,417.6+	
		CH_4 = (0.36 g/gal)(13,873.8 gal)(25 factor to convert to CO_2)	124,865 g	

[1]Sources: USDA-APHIS 2019a, 2019b; USEPA 2020

The combined agency total for Standard and Non-Standard Operations and Total Biogenic emissions is less than 40,000 metric tons (MT) CO_2 equivalent (see Table 7). Based on the number of USDA-APHIS programs, shared use of facilities, and assuming proportionate fleet uses, the fruit fly program emissions would be less than the former 25,000 MT CO_2 equivalent threshold for a quantitative analysis suggested by the President's Council for Environmental Quality (USDA-APHIS 2019a; USEPA 2020).

Potential sources of GHG emissions inherent in USDA-APHIS' fruit fly control or eradication activities include:

- Land vehicles and aircraft used during program delivery
- MB fumigation of commodities
- Pesticide manufacture

We considered the following mitigations to reduce GHG emissions resulting from fruit fly program activities:

- Efficiently combining vehicle trips by personnel
- Elimination of MB as a treatment option for commodities
- Obtaining and storing pesticides locally to reduce transportation emissions

At the present time, the North Hills OFF Program does not anticipate the need to conduct MB fumigation of fruit fly host commodities on a frequent or extensive basis. Efficient vehicle use and improvements in fleet efficiency appear to be the most promising measures that could reduce fruit fly program-related GHG emissions.

Tribal Domains

In compliance with EO 13175 ("Consultation and Coordination with Indian Tribal Governments"), EO 13007 ("Indian Sacred Sites"), and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm), USDA-APHIS communicates and collaborates with Tribal

officials whenever its proposed actions have potential implications on tribes; archaeological resources on public and Tribal lands; and Indian religious practices at sacred sites.

Using the online mapping tool *ArcGIS.com* (see Appendix B for data source) to assess possible Indian domains in the proposed program area, USDA-APHIS found no Federally recognized Tribal lands in Los Angeles County, California. Another map resource from the Bureau of Indian Affairs (data source in Appendix B) confirms this assessment.

A review of archived records (Bureau of American Ethnology 1899) indicates that the proposed program area is part of lands that Indian Tribes occupied centuries ago, but that were ceded to the U.S. Government in 1851. The designated Tribal entities for the two ceded sites are:

- *Buena Vista; Car-I-se; Cas-take; Hol-mi-uk; Ho-lo-cla-me; Se-na-hu-ow; So-ho-nut; Te-jon; To-ci-a; Uva* (present day tribes are Non-Federally recognized Indian groups).

Using the U.S. Department of Housing and Urban Development, Tribal Directory Assessment Tool (TDAT 2021), the following tribes were jurisdictional for Los Angeles County California:

- Soboba Band of Luiseno Indians, California
- Torres Martinez Desert Cahuilla Indians, California

USDA-APHIS' Plant Protection and Quarantine will correspond with representatives of these Tribes to ascertain if they wish further consultation and collaboration.

The proposed action will not disturb the ground, so program implementation is unlikely to affect Native American sites or artifacts. If program personnel discover any archaeological resources, they will notify the appropriate individuals. If there is an ongoing presence of exotic fruit flies that leads to the expansion of program activities onto Tribal lands, program officials will initiate consultation with the governing Tribal authorities and local Tribal Historic Preservation Officers before taking further action. USDA-APHIS will continue to work closely with the County Historical Commission Chair in Los Angeles County and any Tribal entities as appropriate.

Socioeconomics and Environmental Justice

USDA-APHIS considers socioeconomics and equity for all Americans in our program activities to ensure compliance with relevant environmental statutes, including Executive Orders. This section analyzes the environmental factors within the proposed program area that are vital to sustaining the social and economic wellbeing of the affected communities, and assuring for all residents safe, healthful, productive, aesthetical, and culturally pleasing surroundings in both present and future generations (42 U.S.C 4331, Section 101(a)(b)). This analysis helps USDA-APHIS determine if its program action would have disproportionately high and adverse environmental impacts to low-income, minority, and/or Tribal populations (i.e., "environmental justice" impacts).

The U.S. Census Bureau, American Community Survey (USCB 2019) provides relevant information on social factors (such as demographics, race and ethnicity, community health, activities, and quality of life) and economic factors (such as employment, income, business ownership, etc.) in the affected environment (North Hills area). A summary report on the status

of the socioeconomics and the environmental justice (EJ) in this action area is provided below as follows (USCB 2019):

- Total land area is 3.09 sq. miles, and the human density is 19,890 per sq. mile.
- In terms of race, the population is predominantly white (32%), followed by Asians (28%), Blacks (19%), and some other races (14%). In terms of ethnicity, Non-Hispanic Asians alone are majority (28%), followed by Hispanics (25%), Whites alone (23%), Blacks (19%), and others (5%).
- Young people (<18 years old) represent only 7% of the population while adults (>18 years old) represent 93%.
- Education-wise, 18% of people possess a high school diploma and 38% have a bachelor's degree or more. Residents of the North Hills area who speak only English represent 52% of the population. Linguistically isolated households are Asian-Pacific Islanders (82%), Spanish speakers (16%), and other Indo-European speakers (2%).
- In terms of income, residents making $50,000 or less per year represent 55% of the population, and those making $75,000 and above per year represent 35%.
- Majority of resident of the North Hills rent properties (93%), only 7% own houses.
- There are as many residents in the labor force (51%) as those out of the labor force (49%).

USDA-APHIS' taking no action to deter the confirmed North Hills OFF infestation, or limiting federal response to quarantine and commodity certification, could be socioeconomically detrimental. A direct economic impact of OFF infestation to producers would be the decrease of farm income or cashflow due to lower amount and quality of crops in infested areas; nurseries and retail centers would be similarly affected. Ongoing OFF infestation may lead to other (indirect) consequences such as possible overuse of pesticides by individual growers, leading to more chemical pollution; increase of farmer's expenses to protect crops and maintain production; possible switch from fruit to non-OFF host crops; interruption of orchard activities; farmworker unemployment; increased stress (lower morale) and other health concerns in the producers' communities. Such socioeconomic effects could ripple through the general economy; for example, people relying on fruits for food, forage, fuel, or other uses may have to pay more as the local supply of fruits decreases relative to demand, or as local supply must be supplemented by fruit imports. The cost of host commodities may increase due to transportation and handling of imported supplies, and the consequential increased traffic may cause delays. Other examples of possible (indirect) effects through the local economy could include:

- Lower participation in recreational sports, agricultural fairs, and local festivals given that affected producers would have to work harder to compensate for income reductions.
- Low-income farmers may no longer participate in the local economy, cannot afford to purchase homes and health insurance, or pay tuition for their college children. Likewise, minority-owned farm-related businesses could also take serious hits.
- Local jurisdictions and non-profit organizations could lose funding if residents and businesses move away in search for better economic conditions.
- Abandoned and deteriorating properties could result in an increase of diseases and pest prevalence, crime, and other public health concerns.

Implementation of USDA-APHIS' preferred alternative is expected to eradicate OFF in the affected North Hills area and contribute to maintaining an OFF-free human environment (farmlands, pastures, wetlands, residential and other developed areas, etc.), where crops are safe to eat and places are healthy and pleasant to live. This action is not anticipated to pose any safety concerns or public health risk because of the low potential for exposure to program activities and adequate toxicity profile for the selected chemicals (USDA-APHIS 2018a).

In compliance with EO 13045 ("Protection of Children from Environmental Health Risks and Safety Risks"), program personnel will not apply chemical treatment in schools, playgrounds, or other youth-frequented facilities that could raise safety concerns. The proposed program will not impact transportation systems (e.g., road blockage or traffic), social events (e.g., community gatherings, leagues, and recreations), local economy (such as jobs and businesses). Program personnel will notify the owners of the properties where *Bactrocera* spp. are found, as well as the communities residing in the proposed quarantine and treatment areas, to avoid any potential exposure to chemicals during treatment activities and trap maintenance. Program personnel will engage the affected communities in a manner inclusive of all ethnicities (e.g., through outreach meetings, with interpreters if needed) to increase public awareness.

Given the diversity in Los Angeles County and the North Hills area (e.g., race, ethnicity, cultural and linguistically isolated communities), program personnel will ensure compliance with EO 13166 ("Improving Access to Services for Persons with Limited English Proficiency") by notifying the public in both English and other languages, as applicable (use of translators, as needed), to ensure the communication is timely and clear to all. Likewise, the program personnel will comply with both EO 12898 ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations") and EO 13985 ("Advancing Racial Equity and Support for Underserved Communities Through the Federal Government") by using formulations and treatment methods (USDA-APHIS, 2018a) that secure racial equity to all and that do not disproportionately impact minorities and their businesses or lower their employment and income levels.

Registered Historic Sites

The National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 *et seq*.), requires federal agencies to consider the potential impact of their proposed actions on properties on, or eligible for inclusion on, the National Register of Historic Places (36 CFR parts 63 and 800). The visual resources for the listed counties in California include buildings, street patterns and road characteristics, viewsheds, and vistas. The visual resources also include parks, other public properties, and backyards that may serve as habitat for animals.

Fruit fly eradication program activities do not use heavy equipment that creates noise levels requiring auditory protection. There would be minimal to no ground disturbance. Any visual, atmospheric, or auditory effects during application of program chemicals would be limited in duration, intensity, and area. The proposed North Hills OFF Program activities do not alter, change (restore or rehabilitate), modify, relocate, abandon, or destroy any historic buildings, edifices, or nearby infrastructure, therefore, implementing the preferred alternative will not directly or indirectly alter the characteristics of a historic place that qualify it for inclusion on the National Register.

USDA-APHIS considers all federally listed historic properties in Los Angeles County pertaining to a cooperative fruit fly control program before consulting with the appropriate State Historic Preservation Officer (SHPO). In 2015, the California SHPO indicated that USDA-APHIS no longer needs to consult with them for repetitive and recurring fruit fly treatments in California given that these treatments are similar in nature to past efforts (C. Roland-Nawi, SHPO, personal communication, 2015-01-20).

USDA-APHIS has generated a map of the National Register historic properties in Los Angeles County, and the data shows that as of June 29, 2022, there are 196 properties listed on the National Register of Historic Places (NRHP) in Los Angeles County, including four properties in the proposed OFF-quarantine area (Lopez Adobe; Romulo Pico Adobe; Mission San Fernando Rey de Convento Building; and Van Nuys Branch Library). These properties are old buildings (residences and public library) and not OFF hosts found in areas requiring treatment (such as avocado, lemon, and fig trees found in home gardens). Also, none of these historic properties is in North Hills, and none are within the proposed OFF-treatment area. Therefore, implementation of the proposed action is not expected to impact the historic properties.

If USDA-APHIS discovers there are unanticipated effects on a historic property in the program area, the property owner and SHPO would be immediately informed, and the OFF program would cease its treatment application at that location until both USDA-APHIS and the SHPO figure out an appropriate solution.

In general, USDA-APHIS' fruit fly eradication activities are compatible with the preservation of historic sites because control activities within the site are discreetly integrated; the proposed North Hills OFF Program activities will not disturb the ground, and the treatments will not affect any human-made structures. Program treatments and activities are restricted to an as-needed basis and normal program activities at historically significant locations can be modified to reduce pesticide use.

4 Agencies Contacted

California Department of Food and Agriculture
Plant Health and Pest Prevention Services
Environmental Policy and Compliance
1220 N Street, Room 221
Sacramento, CA 95814

California Department of Food and Agriculture
Plant Health and Pest Prevention Services
Pest Detection/Emergency Projects
1220 N Street, Room 315
Sacramento, CA 95814

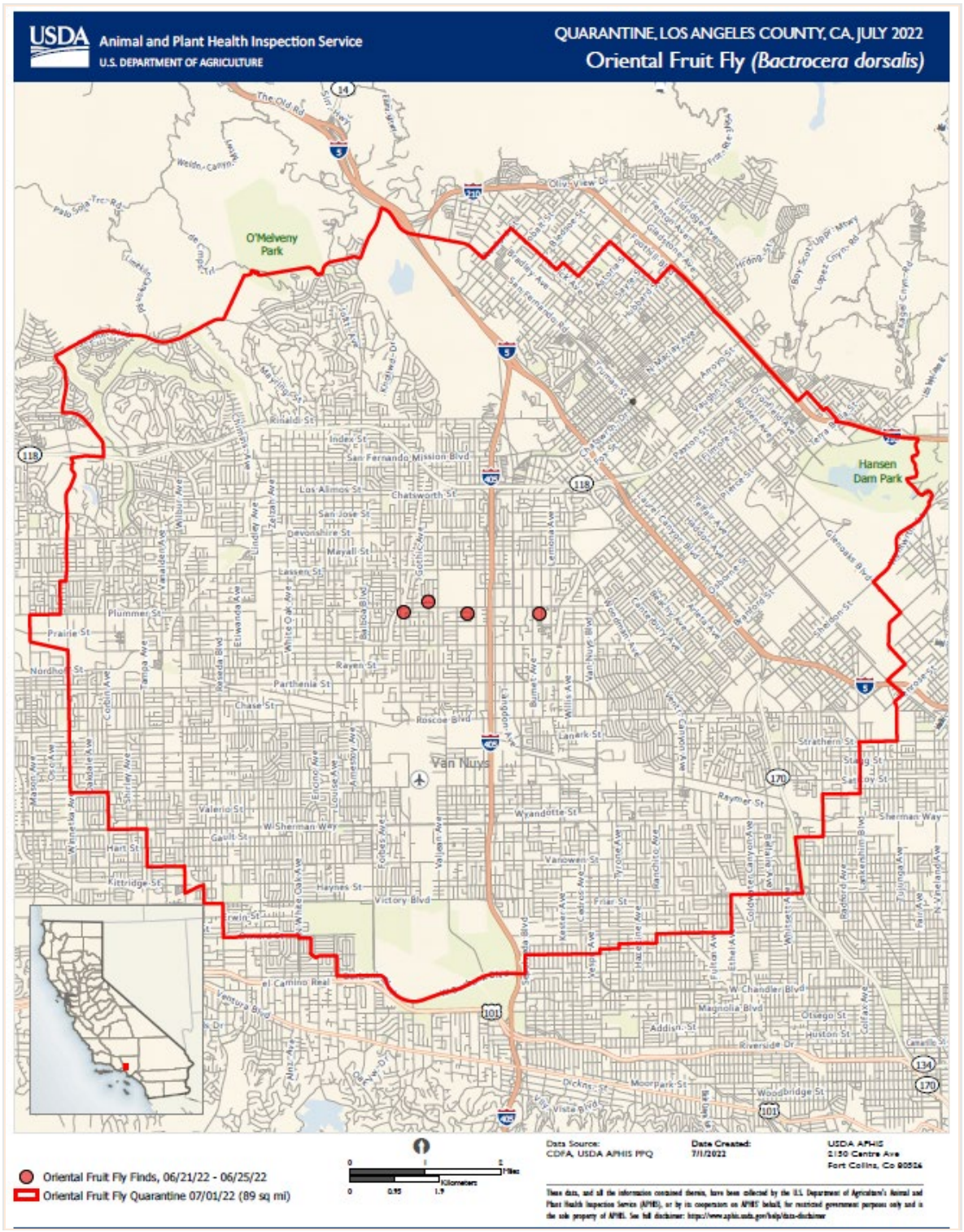
State Historic Preservation Officer
California State Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Emergency and Domestic Programs–Specialty Crops and Cotton Pests
4700 River Road, Unit 26
Riverdale, MD 20737

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Policy and Program Development
Environmental and Risk Analysis Services
4700 River Road, Unit 149
Riverdale, MD 20737

U.S. Fish and Wildlife Service
Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726

Appendix A. North Hills OFF Proposed Program Area as of July 1, 2022.



Map source: USDA-APHIS

Appendix B. Geospatial Data Resources Used in Cooperative Fruit Fly Program NEPA Analysis

Web-Based Mapping Application for Environmental Assessments

- **NepaAssist:** http://nepassisttool.epa.gov/nepassist/entry.aspx

For Information on—

- **Airports:** www.googlemaps.com
- **Bing Maps Road:** http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html
- **Boundaries:** http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Boundaries/MapServer
- **Census Populations:** https://www.census.gov/data.html
- **Crop Data:** http://nassgeodata.gmu.edu/CropScape/
- **Environmental Justice:** www.epa.gov/ejscreen **and** https://ejscreen.epa.gov/mapper/.
- **Farmers Markets:** https://www.ams.usda.gov/local-food-directories/farmersmarkets
- **Historic Sites:** https://www.nps.gov/subjects/nationalregister
- **Land Use:** http://nassgeodata.gmu.edu/CropScape/
- **Local Parks:** www.googlemaps.com
- **National Wildlife Refuges:** http://viewer.nationalmap.gov/
- **Native American Areas:** http://viewer.nationalmap.gov/ **and** http://viewer.nationalmap.gov/
- **California Species List Datasets:** https://www.webapps.nwfsc.noaa.gov/portal/apps/webappviewer/index.html?id=7514c715b8594944a6e468dd25aaacc9
- **Nonattainment Areas:** http://geoplatform2.epa.gov/arcgis/rest/services/PM_Designations_Mapping/Nonattainment_Areas/MapServer
- **Nurseries and Garden Centers:** www.googlemaps.com
- **Organic Farms:** http://www.ams.usda.gov/AMSv1.0/nop
- **Places:** http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Places/MapServer
- **Pesticides**: https://cida.usgs.gov/warp/about/

- **Seaports:** www.googlemaps.com

- **Transportation:** http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Transportation/MapServer

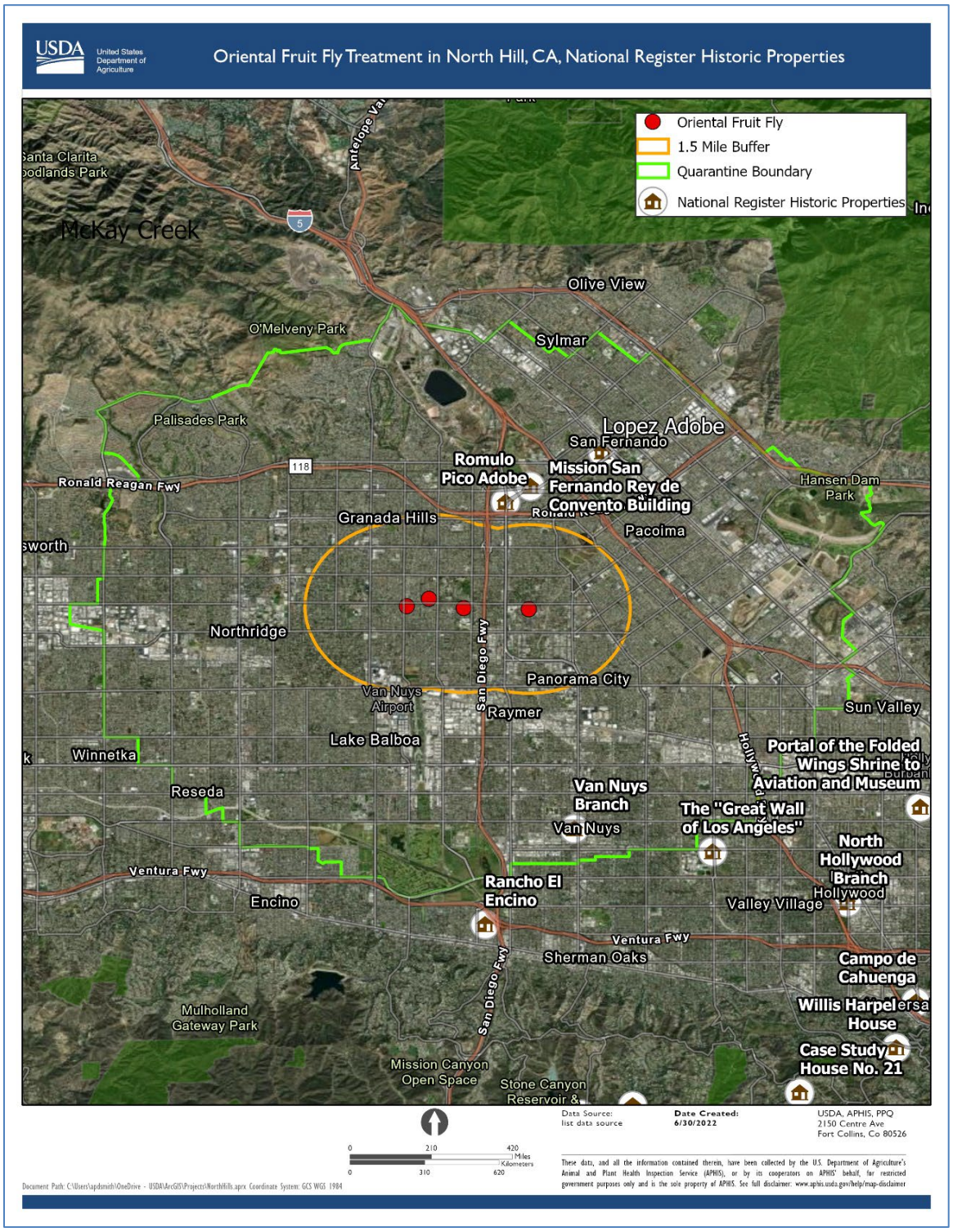
- **Tribal Ceded Lands and Tribal Areas (Tribal Connections Viewer):** https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=f2fbc6413393487883dd44cb3e907616 **and** https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.arcgis.com%2Fapps%2Fwebappviewer%2Findex.html%3Fid%3Dfe311f69cb1d43558227d73bc34f3a32&data=04%7C01%7C%7C0d1129e7b54145c152ba08d98a7f0d71%7Ced5b36e701ee4ebc867ee03cfa0d4697%7C0%7C0%7C637693100557167362%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=l2eyQ51I9Uq1sPdJPdUuNepNIdIDsPnPjPsWzTh83r4%3D&reserved=0 **and** https://www.bia.gov/sites/bia.gov/files/assets/bia/ots/webteam/pdf/idc1-028635.pdf

- **USFWS (Critical Habitat, Migratory Birds):** http://ecos.fws.gov/crithab **and** http://ecos.fws.gov/ipac/ **and** https://wildlife.ca.gov/Data/CNDDB

- **Water:** http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Water/MapServer

- **Wetlands:** http://nassgeodata.gmu.edu/CropScape/

Appendix C. NRHP Properties in Los Angeles County, California



Map of NRHP properties in relation to the proposed OFF program quarantine. (Source: USDA-APHIS)

#	Name of the NRHP property	Date listed (Reference #)	Location	City or town
1	Abraham Lincoln Elementary School	August 3, 1989 (#89000935)	1200 N. Gordon Ave.	Pomona
2	Adamson House	October 28, 1977 (#77000298)	23200 W. Pacific Coast Highway	Malibu
3	Adobe Flores	June 18, 1973 (#73000404)	1804 Foothill St.	South Pasadena
4	Alexander Theatre	February 16, 1996 (#96000102)	216 N. Brand Blvd.	Glendale
5	Anderton Court Shops	May 14, 2004 (#03000987)	332 N.Rodeo Dr.	Beverly Hills
6	Andrew McNally House	March 27, 2007 (#07000245)	654 E. Mariposa St.	Altadena
7	Antelope Valley Indian Museum	February 26, 1987 (#87000509)	15701 East Ave.	Lancaster
8	Ard Eevin	November 21, 2006 (#06001087)	851 W. Mountain St.	Glendale
9	Arroyo Seco Parkway Historic District	February 4, 2011 (#10001198)	CA 110 from Four Level Interchange in Los Angeles to East Glenarm St. in Pasadena	Downtown Los Angeles to Pasadena
10	Atchison, Topeka, and Santa Fe Railroad Station	July 15, 1982 (#82002188)	110 W. 1st St.	Claremont
11	Auditorium	October 13, 1983 (#83003499)	2200 W. Carson	Torrance
12	Aztec Hotel	May 22, 1978 (#78000691)	311 W. Foothill Blvd.	Monrovia
13	Azusa Civic Center	February 21, 2002 (#02000034)	213 Foothill Blvd.	Azusa
14	Barbara Greenwood Kindergarten	September 18, 1978 (#78000697)	Hacienda Pl. and McKinley Ave.	Pomona
15	Bay Street Beach Historic District	June 26, 2019 (#100004116)	Roughly bounded by Pacific Ocean, Ocean Front Walk from Vicente Ter. to Crescent Bay Park, Bicknell Ave. extending into ocean.	Santa Monica
16	Beverly Hills Women's Club	October 4, 2006 (#06000914)	1700 Chevy Chase Dr.	Beverly Hills
17	Beverly Wilshire Hotel	June 12, 1987 (#87000908)	9528 Wilshire Blvd.	Beverly Hills
18	CA-LAN-1258	October 17, 2012 (#12000861)	Address Restricted	Canyon Country
19	CA-LAN-1302	October 17, 2012 (#12000862)	Address Restricted	Azusa
20	CA-LAN-1946	October 17, 2012 (#12000860)	Address Restricted	Acton
21	CA-LAN-441	October 17, 2012 (#12000863)	Address Restricted	Castaic
22	CA-LAN-540	October 17, 2012 (#12000859)	Address Restricted	Agua Dulce
23	Casa de Parley Johnson	March 20, 1986 (#86000449)	7749 Florence Ave.	Downey
24	Case Study House No. 20	July 24, 2013 (#13000517)	2275 N. Santa Rosa Ave.	Altadena
25	Cedar Avenue Complex	September 30, 1993 (#93001017)	44843 (44855), 44845 and 44851 Cedar Ave., 606 Lancaster Blvd., and Old Jail (no address)	Lancaster
26	Charles E. Straight House	July 8, 1992 (#92000833)	4333 Emerald Ave.	La Verne
27	Charmont Apartments	July 25, 1996 (#96000777)	330 California Ave.	Santa Monica
28	Chicano Moratorium March December 20, 1969	October 30, 2020 (#100002655)	Five Points Memorial, North Indiana St., Michigan Ave., Obregon Park	East Los Angeles
29	Christian Science Society	July 10, 2017 (#100001281)	209 E. Whittley Ave.	Avalon

#	Name of the NRHP property	Date listed (Reference #)	Location	City or town
30	Christmas Tree Lane	September 13, 1990 (#90001444)	Santa Rosa Ave. between Woodbury Ave. and Altadena Dr.	Altadena
31	Citizens Publishing Company Building	February 12, 1987 (#87000082)	9355 Culver Blvd.	Culver City
32	City Hall-City of Burbank	April 18, 1996 (#96000426)	275 E. Olive Ave.	Burbank
33	Clarke Estate	January 4, 1990 (#89002267)	10211 Pioneer Blvd.	Santa Fe Springs
34	Club Casa Del Mar	September 29, 2000 (#00001169)	1910 Ocean Ave.	Santa Monica
35	Colonial House	April 15, 1982 (#82002190)	1416 N. Havenhurst Dr.	West Hollywood
36	Community Clubhouse	July 23, 2013 (#13000510)	1200 N. Vista St.	West Hollywood
37	Cooper Arms	December 28, 2000 (#00001538)	455 E. Ocean Blvd.	Long Beach
38	Crank House	July 23, 1997 (#97000751)	2186 Crary St.	Altadena
39	Culver Hotel	April 14, 1997 (#97000296)	9400 Culver Blvd.	Culver City
40	Darius David Johnston House	November 2, 1978 (#78000693)	12426 Mapledale St.	Norwalk
41	Descanso Gardens	April 19, 2021 (#100005157)	1418 Descanso Dr.	La Cañada Flintridge
42	DeWenter Mansion, Guest House and Grounds	November 5, 1992 (#92001559)	6100 Brydon Rd.	La Verne
43	Diamond Apartments	March 26, 1992 (#92000260)	321 Diamond St.	Redondo Beach
44	Doheny Estate/Greystone Mansion	April 23, 1976 (#76000485)	905 Loma Vista Dr.	Beverly Hills
45	Dominguez Rancho Adobe	May 28, 1976 (#76000486)	18127 S. Alameda St.	Compton
46	Edison Historic District	August 13, 1986 (#86001477)	611, 637, and 500 block of W. Second St.	Pomona
47	Edwin Hubble House	December 8, 1976 (#76000494)	1340 Woodstock Rd.	San Marino
48	El Molino Viejo	May 6, 1971 (#71000154)	1120 Old Mill Rd.	San Marino
49	Episcopal Church of the Ascension	August 19, 1977 (#77000303)	25 E. Laurel Ave.	Sierra Madre
50	Federal Building	April 28, 2015 (#15000169)	15000 Aviation Blvd.	Hawthorne
51	Fern Avenue School	February 20, 1992 (#92000067)	1314 Fern Ave.	Torrance
52	First Congregational Church of Long Beach	September 25, 2012 (#12000810)	241 Cedar Ave.	Long Beach
53	First National Bank of Long Beach	September 13, 1990 (#90001432)	101-125 Pine Ave.	Long Beach
54	Forum	September 24, 2014 (#14000661)	3900 Manchester Blvd.	Inglewood
55	Fox Theatre Inglewood	January 14, 2013 (#12001163)	115 N. Market St.	Inglewood
56	Fox Wilshire Theatre	April 3, 2012 (#12000164)	8440 Wilshire Blvd.	Beverly Hills
57	Franklin Rosborough "Frank" Thomas House	February 3, 2015 (#14001233)	758 Flintridge Ave.	La Canada Flintridge
58	Garfield House	April 24, 1973 (#73000405)	1001 Buena Vista St.	South Pasadena
59	Gen. Charles S. Farnsworth County Park	February 7, 1997 (#97000027)	568 E. Mt. Curve Ave.	Altadena
60	Glendale Southern Pacific Railroad Depot	May 2, 1997 (#97000376)	Gardena Ave., junction with W. Cerritos Ave.	Glendale

#	Name of the NRHP property	Date listed (Reference #)	Location	City or town
61	Glendale Young Men's Christian Association	October 21, 1994 (#94001224)	140 N. Louise St.	Glendale
62	Glendora Bougainvillea	February 7, 1978 (#78000683)	Bennett and Minnesota Aves.	Glendora
63	Grand Central Air Terminal	March 27, 2017 (#100000780)	1310 Air Way	Glendale
64	Green-Rankin-Bembridge House	February 10, 2005 (#05000002)	953 Park Circle Dr.	Long Beach
65	Hacienda Arms Apartments	December 15, 1983 (#83003531)	8439 Sunset Blvd.	West Hollywood
66	Harold Lloyd Estate	February 9, 1984 (#84000876)	1740 Green Acres Drive	Beverly Hills
67	Hawkins-Nimocks Estate-Patricio Ontiveros Adobe	December 31, 1987 (#82004982)	12100 Telegraph Rd.	Santa Fe Springs
68	Helen Goodwin Renwick House	June 7, 2016 (#16000322)	146 N. College Ave.	Claremont
69	Henry Weaver House	December 27, 1989 (#89002114)	142 Adelaide Dr.	Santa Monica
70	Home Economics Building	October 13, 1983 (#83003536)	2200 W. Carson	Torrance
71	Hoover Hotel	February 1, 2002 (#02000074)	7035 Greenleaf Ave.	Whittier
72	Horatio West Court	April 11, 1977 (#77000302)	140 Hollister Ave.	Santa Monica
73	Hotel Glendale	October 7, 1994 (#94001197)	701 E. Broadway	Glendale
74	Howard Longley House	April 16, 1974 (#74000527)	1005 Buena Vista St.	South Pasadena
75	Humaliwo	September 1, 1976 (#76000492)	Address Restricted	Malibu
76	Hunt House	June 26, 2019 (#100004118)	24514 Malibu Rd.	Malibu
77	Intercultural Council Houses	April 7, 2015 (#15000121)	Bounded by Blanchard Pl., Claremont Blvd., E. 1st & Brooks Sts.	Claremont
78	J.W. Schaffer House	April 19, 2016 (#16000174)	527 Whiting Woods Rd.	Glendale
79	James C. Rives House	May 22, 1978 (#78000681)	10921 S. Paramount Blvd.	Downey
80	James Daniel Derby House	December 14, 1978 (#78000682)	2535 E. Chevy Chase Dr.	Glendale
81	Jennie A. Reeve House	June 21, 1984 (#84000883)	4260 Country Club Dr.	Long Beach
82	John A. Rowland House	July 16, 1973 (#73000403)	16021 E. Gale Ave.	Industry
83	John Carlton Pegler House	October 20, 1988 (#88002019)	419 E. Highland Ave.	Sierra Madre
84	Jonathan Bailey House	August 29, 1977 (#77000304)	13421 E. Camilla St.	Whittier
85	Joseph and Carrie Torrey House	April 23, 2018 (#100002319)	711 Daisy Ave.	Long Beach
86	Karasik House	December 22, 2011 (#11000933)	436 Spalding Dr.	Beverly Hills
87	Katherine Emery Estate	January 10, 2011 (#10001118)	1155 Oak Grove Ave.	San Marino
88	Keyes Bungalow	November 14, 1978 (#78000678)	1337 E. Boston St.	Altadena
89	Killingsworth, Brady, & Smith	July 15, 2009 (#09000515)	3827-3837 Long Beach Blvd.	Long Beach
90	La Casa Alvarado	April 19, 1978 (#78000698)	1459 Old Settlers Lane	Pomona
91	La Casa Primera de Rancho San Jose	April 3, 1975 (#75000436)	1569 N. Park Ave.	Pomona

#	Name of the NRHP property	Date listed (Reference #)	Location	City or town
92	La Laguna de San Gabriel	January 11, 2017 (#100000462)	300 W. Wells St.	San Gabriel
93	La Puente Valley Woman's Club	April 29, 1999 (#99000482)	200 N. First St.	La Puente
94	Lanterman House	December 29, 1994 (#94001504)	4420 Encinas Dr.	La Cañada Flintridge
95	Leonis Adobe	May 29, 1975 (#75000433)	23537 Calabasas Rd.	Calabasas
96	Lincoln Park Historic District	April 9, 2004 (#03001347)	Roughly bounded by McKinley Ave., Towne Ave., Pasadena St. and Garey Ave.	Pomona
97	Lloyd Wright Home and Studio	April 6, 1987 (#87000562)	858 N. Doheny Dr.	West Hollywood
98	Long Beach Professional Building	August 3, 2005 (#05000773)	117 E. 8th St.	Long Beach
99	Lopez Adobe	May 6, 1971 (#71000157)	1100 Pico St.	San Fernando
100	Los Cerritos Ranch House	April 15, 1970 (#70000135)	4600 Virginia Rd.	Long Beach
101	Lynwood Pacific Electric Railway Depot	September 25, 1974 (#74000524)	11453 Long Beach Blvd.	Lynwood
102	Main Building	October 13, 1983 (#83003538)	2200 W. Carson	Torrance
103	Malaga Cove Plaza	October 1, 2021 (#100007016)	Roughly bounded by Palos Verdes Drive West, Vía Tejon, Vía Corta, and Malaga Ln	Palos Verdes Estates
104	Malibu Historic District	January 29, 2018 (#100002022)	Roughly along Pacific Coast from east of Malibu Pier to the Malibu Colony privacy fence	Malibu
105	Mayfair Hotel	July 31, 2017 (#100001382)	115 E. 3rd St.	Pomona
106	McNally's Windemere Ranch Headquarters	July 20, 1978 (#78000684)	San Esteban and San Cristobal Dr.	La Mirada
107	Michael White Adobe	September 30, 2014 (#14000797)	2701 Huntington Dr.	San Marino
108	Middough Brothers-Insurance Exchange Building	February 5, 2003 (#03000002)	205 E. Broadway	Long Beach
109	Miltimore House	March 24, 1972 (#72000235)	1301 S. Chelten Way	South Pasadena
110	Mirlo Gate Lodge Tower	April 22, 2019 (#100003633)	4420 Via Valmonte	Palos Verdes Estates
111	Mission San Fernando Rey de Convento Building	October 27, 1988 (88002147)	15151 San Fernando Mission Blvd., Mission Hills	Los Angeles, California
112	Montebello Woman's Club	March 31, 1995 (#95000266)	201 S. Park Ave.	Montebello
113	Mount Lowe Railway	January 6, 1993 (#92001522)	North of Altadena in Angeles NF	Altadena
114	National Bank of Whittier Building	December 30, 1982 (#82000969)	13002 E. Philadelphia St.	Whittier
115	National Chicano Moratorium March August 29, 1970	November 16, 2020 (#100002657)	East 3rd St., Beverly Blvd., Atlantic Ave., Whittier Blvd., and Salazar Park	East Los Angeles
116	North Harper Avenue Historic District	June 28, 1996 (#96000694)	Roughly N. Harper Ave. between Fountain and De Longpre Aves.	West Hollywood
117	Oaklawn Bridge and Waiting Station	July 16, 1973 (#73000406)	Between Oaklawn and Fair Oaks Aves.	South Pasadena
118	Olan G. and Aida T. Hafley House	July 12, 2011 (#11000429)	5561 E. La Pasada St.	Long Beach
119	Orin Jordan House	July 28, 1980 (#80000815)	8310 S. Comstock Ave.	Whittier
120	Pacific Electric Railroad Bridge	July 13, 1989 (#89000854)	Torrance Blvd. and Bow St.	Torrance
121	Pacific Electric Railway Company Substation No. 8	November 9, 1977 (#77000295)	2245 N. Lake Ave.	Altadena

#	Name of the NRHP property	Date listed (Reference #)	Location	City or town
122	Paddison Ranch Buildings	June 23, 1978 (#78000694)	11951 Imperial Hwy.	Norwalk
123	Padua Hills Theatre	January 23, 1998 (#97001660)	4467 Via Padova	Claremont
124	Palos Verdes Public Library and Art Gallery	April 7, 1995 (#95000388)	2400 Via Campesina	Palos Verdes Estates
125	Pan American National Bank of East Los Angeles	March 27, 2017 (#100000782)	3620-3626 E. 1st St.	East Los Angeles
126	Parkhurst Building	November 17, 1978 (#78000699)	185 Pier Ave.	Santa Monica
127	Patio del Moro	September 11, 1986 (#86002418)	8225-8237 Fountain Ave.	West Hollywood
128	Peter Drucker House	December 18, 2017 (#100001890)	636 Wellesley Dr.	Claremont
129	Peter Gano House	September 15, 1983 (#83001194)	718 Crescent Ave.	Avalon
130	Phillips Mansion	November 6, 1974 (#74000525)	2640 W. Pomona Blvd.	Pomona
131	Pio Pico Casa	June 19, 1973 (#73000408)	6003 Pioneer Blvd.	Whittier
132	Pioneer Oil Refinery	December 11, 2020 (#100005942)	0.35 mi. southwest of jct. of Pine St. and Newhall Ave.	Santa Clarita
133	Pitzer House	September 4, 1986 (#86002192)	4353 N. Towne	Claremont
134	Point Vicente Light	October 31, 1980 (#80000808)	Rancho Palos Verdes	Rancho Palos Verdes
135	Pomona City Stables	October 6, 2004 (#04001109)	636 W. Monterey Ave.	Pomona
136	Pomona Fox Theater	February 19, 1982 (#82002201)	102-144 3rd St.	Pomona
137	Pomona YMCA Building	March 6, 1986 (#86000408)	350 N. Garey Ave.	Pomona
138	Puvunga Indian Village Sites	January 21, 1974 (#74000521)	Address Restricted	Long Beach
139	Queen Anne Cottage and Coach Barn	October 31, 1980 (#80000804)	301 N. Baldwin Ave.	Arcadia
140	R. M. Schindler House	July 14, 1971 (#71000150)	833 N. Kings Rd.	West Hollywood
141	Rancho Los Alamitos	July 7, 1981 (#81000153)	6400 Bixby Hill Rd.	Long Beach
142	Redondo Beach Original Townsite Historic District	June 30, 1988 (#88000970)	N. Gertruda Ave., Carnelian St., N. Guadalupe Ave. and Diamond St.	Redondo Beach
143	Redondo Beach Public Library	March 12, 1981 (#81000158)	309 Esplanade St.	Redondo Beach
144	Rialto Theatre	May 24, 1978 (#78000700)	1019-1023 Fair	South Pasadena
145	Ridge Route	September 25, 1997 (#97001113)	Along Old Ridge Rte., roughly bounded by Sandberg and Canton Canyon	Castaic
146	RMS Queen Mary	April 15, 1993 (#92001714)	Pier J, 1126 Queensway Hwy.	Long Beach
147	Rockhaven Sanitarium Historic District	June 9, 2016 (#16000355)	2713 Honolulu Ave. bounded by Pleasure Way, Hermosa & Honolulu Aves.	Glendale
148	Rómulo Pico Adobe	November 13, 1966 (66000211)	10940 Sepulveda Boulevard, Mission Hills	Mission Hills, Los Angeles, California
149	Ronda	February 28, 1985 (#85000356)	1400-1414 Havenhurst Dr.	West Hollywood
150	Rubel Castle Historic District	October 7, 2013 (#13000810)	844 N. Live Oak Ave.	Glendora
151	Russian Village District	December 28, 1978 (#78000680)	290-370 S. Mills Ave. and 480 Cucamonga Ave.	Claremont
152	Saddle Rock Ranch Pictograph Site	February 12, 1982 (#82004617)	Address Restricted	Malibu

#	Name of the NRHP property	Date listed (Reference #)	Location	City or town
153	San Dimas Hotel	March 16, 1972 (#72000233)	121 San Dimas Ave.	San Dimas
154	San Gabriel Mission	May 6, 1971 (#71000158)	Junipero St. and W. Mission Dr.	San Gabriel
155	San Gabriel Mission Playhouse	July 22, 2019 (#100002674)	320 S. Mission Dr.	San Gabriel
156	San Rafael Rancho	December 12, 1976 (#76000487)	Bonita Dr.	Glendale
157	Santa Monica Looff Hippodrome	February 27, 1987 (#87000766)	276 Santa Monica Pier	Santa Monica
158	Scripps College for Women	September 20, 1984 (#84000887)	Columbia and 10th St.	Claremont
159	Scripps Hall	July 28, 1999 (#99000893)	209 E. Mariposa St.	Altadena
160	Second Church of Christ Scientist	April 1, 2005 (#05000212)	655 Cedar Ave.	Long Beach
161	Security Trust and Savings Building	March 29, 2019 (#100003553)	110 Pine Ave.	Long Beach
162	South Pasadena Historic District	July 21, 1982 (#82002202)	Roughly bounded by Mission and El Centro Sts., and Fairview and Meridian Aves.	South Pasadena
163	Southern Pacific Railroad Depot, Whittier	March 29, 2005 (#04001105)	7333 Greenleaf Ave.	Whittier
164	Sovereign Hotel	October 24, 1997 (#97001236)	205 Washington Ave.	Santa Monica
165	Standard Oil Building	June 9, 1980 (#80000816)	7257 Bright Ave.	Whittier
166	Stevens House	October 9, 2009 (#09000802)	23524 Malibu Colony Rd.	Malibu
167	Sunset Tower	May 30, 1980 (#80000812)	8358 Sunset Blvd.	West Hollywood
168	Sweetser Residence	September 5, 1985 (#85001984)	417 E. Beryl St.	Redondo Beach
169	Temple Mansion	December 2, 1974 (#74000518)	15415 E. Don Julian Rd.	Industry
170	The Oaks	April 6, 1978 (#78000692)	250 N. Primrose Ave.	Monrovia
171	The Tank Site-(CA-LAN-1)	December 17, 2015 (#15000912)	Address Restricted	Topanga Canyon
172	The Willmore	May 20, 1999 (#99000579)	315 W. Third St.	Long Beach
173	Torrance School	October 13, 1983 (#83003542)	2200 W. Carson	Torrance
174	Tuna Club of Avalon	April 2, 1991 (#91000338)	100 St. Catherine Way, Catalina Island	Avalon
175	Upton Sinclair House	November 11, 1971 (#71000153)	464 N. Myrtle Ave.	Monrovia
176	US Post Office-Beverly Hills Main	January 11, 1985 (#85000126)	469 N. Crescent Dr.	Beverly Hills
177	US Post Office-Burbank Downtown Station	January 11, 1985 (#85000127)	125 E. Olive Ave.	Burbank
178	US Post Office-Glendale Main	January 11, 1985 (#85000128)	313 E. Broadway St.	Glendale
179	US Post Office-Long Beach Main	January 11, 1985 (#85000129)	300 Long Beach Blvd.	Long Beach
180	Van Nuys Branch Library	May 19, 1987 (87001019)	14553 Sylvan Way	Van Nuys, CA 91401
181	Vasquez Rocks	June 22, 1972 (#72000228)	Agua Dulce Rd.	Agua Dulce
182	Villa Carlotta	June 17, 2014 (#14000303)	234 E. Mendocino St.	Altadena
183	Villa Francesca	October 2, 1986 (#86002796)	1 Peppertree Dr.	Rancho Palos Verdes

#	Name of the NRHP property	Date listed (Reference #)	Location	City or town
184	Villa Riviera	July 25, 1996 (#96000778)	800 E. Ocean Blvd.	Long Beach
185	Virginia Robinson Estate	November 15, 1978 (#78000679)	1008 Elden Way	Beverly Hills
186	Walter D. Valentine Cottage B	July 24, 2017 (#100001337)	1419 E. Palm St.	Altadena
187	Washington Building	May 28, 1991 (#91000635)	9720-9732 Washington Blvd.	Culver City
188	Wayfarers Chapel	July 11, 2005 (#05000210)	5755 Palos Verdes Dr. S	Rancho Palos Verdes
189	Well No. 4, Pico Canyon Oil Field	November 13, 1966 (#66000212)	9.5 miles (15.3 km) north of San Fernando, west of US 99	Mentryville
190	William Wrigley, Jr. Summer Cottage	August 15, 1985 (#85001785)	76 Wrigley Rd.	Avalon
191	Woman's Club of Redondo Beach	April 19, 1984 (#84000900)	400 S. Broadway	Redondo Beach
192	Woodbury-Story House	December 30, 1993 (#93001463)	2606 N. Madison Ave.	Altadena
193	Workman Adobe	November 20, 1974 (#74000519)	15415 E. Don Julian Rd.	Industry
194	Workman Family Cemetery	November 20, 1974 (#74000520)	15415 E. Don Julian Rd.	Industry
195	Wynyate	April 24, 1973 (#73000407)	851 Lyndon St.	South Pasadena
196	Ygnacio Palomares Adobe	March 24, 1971 (#71000156)	Corner of Arrow Hwy. and Orange Grove Ave.	Pomona
197	Zane Grey Estate	October 24, 2002 (#02001187)	396 E. Mariposa St.	Altadena
198	Zumbrota (yacht)	March 20, 2017 (#100000762)	13755 Fiji Way	Marina Del Rey

Appendix D. References

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