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Service

Oriental Fruit Fly Cooperative Eradication Program

**Los Angeles County,
California**

**Environmental Assessment
December 2014**

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I. Need for the Proposal

The oriental fruit fly (OFF), *Bactrocera dorsalis* (Hendel) (synonym == *Dacus dorsalis* Hendel), 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. Following introduction into the Hawaiian Islands in the 1940s (NAPIS, n.d.), this fly multiplied rapidly and currently is known to infest more than 125 different host fruits in the State of Hawaii. Worldwide, OFF has been recorded infesting more than 230 kinds of fruit and vegetables, including citrus, guava, mango, papaya, avocado, banana, loquat, tomato, Surinam cherry, rose apple, passion fruit, persimmon, pineapple, peach, pear, apricot, fig, and coffee berries.

OFF can move several miles per day; one female OFF can lay up to 1,500 eggs (CDFA, 2006). OFF establishment would be disastrous to agricultural production in states where host plants are grown. OFF has been identified and eradicated numerous times in the continental United States since it was first found in California in 1960. Although OFF is not known to be established in California, detection of new infestations occurs on almost an annual basis. Reintroduction is most often due to infected fruits and vegetables that are brought across the border without inspection.

The first detection of OFF in Los Angeles County this year was reported in North Hollywood on May 16, 2014. As of December 5 there have been a total of 27 OFF detections confirmed in the county: all were adults and 2 of the 3 females were fully laden with eggs. The State of California is currently overseeing three OFF eradication programs in Los Angeles County: in the cities of Los Angeles, North Hollywood, and Pomona. These have not triggered quarantine regulatory actions. Eradication programs occur prior to the quarantine triggers in order to eliminate the detections before the quarantine threshold is reached.

Between October 28 and December 1, 2014, six adult male OFF were recovered from fly traps in the Inglewood region of the city of Los Angeles. A quarantine trigger was reached there on December 5 with the find of two more OFF, this time an adult male and an adult, unmated female. A quarantine map is attached in appendix A. The region surrounding the infestation is a mixture of residential neighborhoods, commercial districts, schools, major freeways and railroads, airports, harbors and beaches, city parkland and developed recreational property. There are numerous landscape and retail plant nurseries in and surrounding the infested area. Three additional male OFF were collected in Los Angeles as of December 11; however, only one detection was associated with the quarantine (CDFA, 2014a through 2014o).

California pursues an ongoing OFF detection and eradication program. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) are proposing a cooperative program to eradicate the OFF infestation and prevent the spread of OFF to non-infested areas of the United States. APHIS' authority for cooperation in the program is the Plant Protection Act (Title 4 of the Agricultural Risk Protection Act of 2000), which authorizes the Secretary of Agriculture to carry out operations to eradicate insect pests, and to use emergency measures to prevent the dissemination of plant pests new to, or not widely distributed throughout, the United States.

APHIS has cooperated with the California, Texas, and Florida State Departments of Agriculture on fruit fly eradication programs since 1984. To date, every fruit fly population in California targeted by APHIS cooperative programs has been successfully eradicated. The most recent OFF eradication program was conducted by APHIS with CDFA last year in a region of Los Angeles and Orange Counties (APHIS, 2013).

CDFA/USDA cooperative program protocols for OFF eradication employ various "action triggers" for Federal involvement; triggers include fly life stage, location, and timing of detections, among other variables. Surveys for OFF have intensified in the neighborhood of the finds; a quarantine program has been designed to eradicate the Los Angeles (Inglewood region) infestation. See map of the current program area¹ in appendix A.

Many OFF host plant species are grown in Los Angeles County and adjacent regions, which increases the potential environmental impact of the current infestations. Commercial production of OFF-host commodities begins within 20 miles of the OFF detections (APHIS, 2014a). An adult OFF can fly over 7 miles unaided but may travel 30 miles or more in 1 day utilizing passive transport such as wind, according to laboratory and field studies (Froerer et al., 2010; Liang et al., 2001). Because of the species' rapid population growth and potential for damage, OFF infestations represent a major threat to the agriculture and environment of California and other U.S. mainland States.

This environmental assessment (EA) analyzes the environmental consequences of alternatives which have been considered for OFF eradication, and considers, from a site-specific perspective, environmental issues relevant to this particular program. Alternatives for OFF

¹ For the purposes of this document, "program area" refers to everywhere inside the quarantine boundary, and includes both eradication treatment and regulatory control zones.

eradication have been discussed and analyzed comprehensively by APHIS and its cooperating partners since 1984.

APHIS first evaluated the environmental impacts of fruit fly control technologies in the “Fruit Fly Cooperative Control Program, Final Environmental Impact Statement—2001” (EIS1) (APHIS, 2001). APHIS reexamined its findings and introduced an additional tool for eradication in the “Use of Genetically Engineered Fruit Fly and Pink Bollworm in APHIS Plant Pest Control Programs, Final Environmental Impact Statement—2008” (EIS2) (APHIS, 2008). Both EIS1 and EIS2 consider fruit fly risks and mitigations at the programmatic level. This case-specific EA incorporates the findings of EIS1 and EIS2 by reference.

The eradication measures being considered for this program have been discussed and analyzed comprehensively within APHIS fruit fly chemical risk assessments (APHIS, 2014b, 2003, 1999, 1998a and 1998b). These documents are incorporated by reference and summarized within this EA. Environmental documentation for APHIS fruit fly control programs may be viewed online via the following links: [APHIS fruit fly control program environmental documentation](#) and [APHIS GE control applications for plant health](#).

II. Alternatives

Alternatives considered for this proposed program include (A) no Federal action, and (B) the preferred alternative, eradication using an integrated pest management (IPM) approach. Component techniques of alternative B include the use of regulatory controls, high density trapping, host larval survey, and chemical pesticides to facilitate the timely elimination of the current OFF infestation. These alternatives and their component techniques have been discussed and analyzed comprehensively within EIS1 and EIS2 (APHIS, 2001 and 2008), and are incorporated by reference and summarized within this EA.

A. No Action

Under the no action alternative there would be no Federal efforts to eradicate OFF or restrict its expansion from the infested area. In the absence of a Federal effort, quarantine and control would be left to State and local government, grower groups, and individuals. Expansion of the infestation would be influenced by any controls exerted over it, by the proximity of host plants, and by climatic conditions.

“No treatment” might be the only reasonable alternative for some sensitive sites. In such cases, lack of treatment could lead to a continuing and expanding infestation. An expansion of the infestation would likely result in substantial economic losses to growers in the United States, as well as

the loss of U.S. export markets.

Under the no action alternative, APHIS would continue cooperative practices to support the CDFA detection trapping program and research. (For details about the California State program for OFF, please visit the CDFA web site at:

http://www.cdffa.ca.gov/phpps/pdep/treatment/oriental_ff.html.)

B. Eradication Using an IPM Approach (Preferred Alternative)

APHIS' preferred alternative for the Los Angeles OFF program is eradication using an integrated pest management (IPM) approach. This alternative combines quarantine and commodity certification with eradication treatments. Successful eradication of the August 2013 OFF infestation in Los Angeles and Orange Counties, using a similar IPM strategy, was declared in April 2014 and the quarantine was removed (APHIS, 2014c). Monitoring for OFF continues throughout all susceptible counties of California.

CDFA (2014a) has determined there are no non-pesticidal options available to effectively eradicate OFF. APHIS concurs with their assessment. Eradication efforts may employ any or a combination of the following:

- no action,
- regulatory quarantine treatment and control of host materials and regulated articles,
- host removal,
- eradication chemical applications (male annihilation bait stations and/or foliar spray spot treatment), and
- mass trapping for monitoring and surveillance purposes.

The program area for the current infestation includes those portions of Los Angeles County which fall within an 81 square mile boundary (see map in appendix A) centered on each infestation site. The current boundary may be expanded to include other properties if additional adult flies or life stages are found.

APHIS' cooperative programs to eradicate OFF infestations in California use well-established procedures and treatments. McPhail and Jackson traps which target female OFFs and males, respectively, of the outbreak are placed in varying densities throughout the program area to delimit the infestation and to monitor post-treatment fly populations. These traps are serviced on a regular schedule for a period equal to three OFF generations beyond the date of the last fly find. According to established OFF

program protocol, treatment placement is determined by encompassing an approximate radius of 1.5 miles around each infested property on which an adult fly is trapped, or on which property another life stage of OFF is present (CDFA, 2014a). The OFF progresses through a four-stage life cycle: egg, larva, pupa and adult. Breeding is continuous, with several annual generations. The adult fly usually lives from 1 to 3 months but can survive up to a year in cool climates (FDACS, 1999).

Male attractant technique (MAT) is the standard eradication treatment practice for OFF. The MAT is deployed in a 1.5-mile radius from each OFF detection site for a minimum of 9 square miles. In a typical OFF program approximately 600 small, gel-like bait stations per square mile are applied to utility poles and street trees at least 6 feet above the ground. For the Los Angeles/Inglewood program traps will be placed where there are no suitable locations to place bait stations (APHIS, 2014a). The treatment is repeated every 2 weeks for a minimum of four applications, or one to two life cycles, depending on the severity of the infestation. These bait stations contain a male attractant (methyl eugenol) that is mixed with a small amount of the pesticide naled or the pesticide spinosad. The bait stations attract male OFF looking for an opportunity to breed. The females go unmated and, therefore, no offspring are produced, effectively causing eradication of the population.

Should evidence of a breeding OFF population be confirmed, a targeted, ground-based foliar bait treatment will also be applied. For such treatment, host trees and plants within a 200-meter radius of the find site are treated with highly localized spray that consists of an organic formulation of the pesticide spinosad and protein hydrolysate bait. Protein hydrolysate is a common attractant used in fruit fly treatments increasing the efficacy of chemical applications and reducing the area of insecticide treatments needed for control (Prokopy et al., 1997). Pest fruit flies are attracted to the protein hydrolysate, which can be derived from plants or yeast, where they then receive a lethal dose of the insecticide that is mixed with the attractant. Also, the evidence of a breeding population will result in the removal of host fruit from all known infested and adjacent properties within a 100-meter radius (CDFA, 2014a).

A quarantine boundary will be established to ensure that any host material that leaves the program area is free of OFF. Host material may be treated in enclosed areas or containers by, cold treatment, vapor heat treatment, irradiation, or fumigation with methyl bromide (APHIS, 2004 and 2001).

Growers will be able to move their harvested fruit out of the quarantined area, under a limited permit, to enclosed facilities for processing into juice or for packing, after APHIS-approved methyl bromide treatment in the field or at the packing shed take place. Grower of host fruits may also treat

their orchards using approved field program treatments and be certified for crop movement to packing sheds under compliance agreement. Should the OFF quarantine spread to federally-protected historical sites, wilderness, or tribal lands, program treatments will be restricted to those approved for the type of site in question.

Before taking action, program officials are to inform the public and impacted industry via press releases, meetings, and other forms of communication appropriate for the recipients. Notification letters will be sent to trading partners as they are identified. Given the potential impacts to commercial production, grove owners, packing sheds, nurseries, vendors, and other industry operations handling OFF host material will be notified of the OFF quarantine location and treatment schedule.

For more detailed information on the alternatives considered for OFF control and their component methods, refer to the previously mentioned fruit fly risk assessments (APHIS, 2014b, 2003, 1999, 1998a, and 1998b).

III. Potential Environmental Consequences

This EA analyzes the potential environmental consequences of alternatives considered for OFF control. The site-specific characteristics of the OFF program area were considered with respect to the preferred alternative's potential to affect human health, nontarget species (including threatened and endangered species), and environmental quality. Potentially sensitive sites have been identified, considered, and accommodated through special selection of eradication methods and use of specific mitigation measures. Should OFF detections lead to an expansion of the program boundary, APHIS will conduct any necessary additional environmental analysis.

A. No Action

Lack of Federal action would place the burden of eradication on the State of California. It is reasonable to expect that OFF populations would continue to expand in size and area, leading to increased quarantine efforts. Any failure of those efforts could lead to the establishment of this pest within the conterminous United States. If eradication attempts are unsuccessful, APHIS expects substantial economic losses to growers in the United States. Crop loss is likely to lead to commodity scarcity, higher costs for U.S. consumers, and the temporary or permanent loss of U.S. valuable export markets.

B. Preferred Alternative

The preferred alternative, eradication using an IPM approach, may employ any or a combination of the following:

- no action,
- regulatory quarantine treatment and movement control of host materials and regulated articles,
- host removal,
- eradication chemical applications (male annihilation bait stations and/or foliar spray spot treatment), and
- mass trapping for monitoring and surveillance purposes.

The attractant used in the OFF MAT poses a slight risk to certain terrestrial invertebrates that are attracted to the bait due to the presence of methyl eugenol, and could receive a lethal dose of naled or spinosad. However, based on the selective nature of the attractant the impacts would be localized and transient and not anticipated to result in population level effects to sensitive taxa including beneficial arthropods (APHIS, 2014b). Review of the treatment protocols by CDFR and USDA indicates that the naled and spinosad formulations used for OFF MAT are not likely to cause adverse environmental or human health risks (APHIS, 2014b, 1998a and 1998b). Therefore, the discussion in this section will focus on the other eradication measures of the preferred alternative.

1. Affected Environment

a. Land Characteristics and Demographics

Land use in the immediate program area is urban residential. The region has been experiencing extreme drought broken to a certain extent recently by unusually heavy rainfall, but typically enjoys a temperate climate: summer weather is moderate to hot with cool evenings; winters are mild. The average annual temperature for the region is 70 °F and its average annual rainfall is 10 to 14 inches.

Los Angeles County is highly developed and has the highest population of any county in the United States: approximately 10.4 million residents. Tourism is the county's third largest industry, attracting millions of visitors annually (LA County, 2014). The county forms part of the Los Angeles–Long Beach–Santa Ana, California Metro Area (USCB, 2014a). The City of Los Angeles spread over 468 square miles and had an estimated population of 3,884,307 in 2013 – census figures indicate approximately 8,100 residents per square mile (USCB, 2014b). Table 1 shows distances from the program area to demographic areas of potential concern.

Table 1. Distance from core of current program area to certain populated sites. (See appendix B for data sources.)

Nearest airports	Hawthorne Municipal: 2.6 miles Los Angeles International: 6.6 miles Santa Monica Municipal: 10.6 miles Long Beach Airport: 11.6 miles
Nearest Federal lands	Santa Monica Mountains NRA: ±12 miles Long Beach Naval Station: 12.4 miles Fort MacArthur: 14.9 miles
Nearest historic site	Watts Station: 2.9 miles
Nearest international seaport	Port of Los Angeles: 13 miles
Nearest Native American area	Pechanga Indian Reservation: 85 miles
Organic farms	64 farms within 30 miles
Schools and academic institutions within the program area	+217 within the quarantine boundary; Woodcrest Elementary is the only school located within the chemical treatment area.

California freeways passing through the program area include Interstates 110 and 105, and State Routes 42 and 91. The OFF infestation is currently concentrated in the Athens neighborhood; schools, municipal parks, biking and hiking trails, golf courses, and other public and private recreational facilities also occur within or near the program area. OFF host vegetation in the program area occurs primarily on residential property.

b. Water Resources

Los Angeles County obtains electric power, irrigation and drinking water from various resources: groundwater, the Colorado River, and State Water Project reservoirs. The city of Los Angeles, including the current OFF program area, obtains water primarily from the State Water Project (WEF, 2014). Water located beneath the program area or that drains off it enters the Scholl Canyon watershed of the Los Angeles River. See table 2 for distances between the OFF program and certain water resources.

Table 2. Distance from core of current program area to water resources. (See appendix B for data sources.)

Associated watershed	Los Angeles River, Scholl Canyon, HUC12-18701050402
Nearest water bodies	Brickyard Quarry: 2.9 miles (within quarantine) Alondra Park Reservoir: 4.4 miles (within quarantine) Dominquez Channel: 4.6 miles
Impaired waters	44 listed within 15 miles (2 within quarantine)
Shortest distance to Pacific Ocean	13.0 miles

Seven different types of wetlands are historically found within 15 miles of the program area, ranging from freshwater ponds and rivers to estuarine and marine deepwater. Since 2012 the State of California has experienced unusual surface and ground water loss from severe drought conditions and continues to seek additional ways to reduce water use: first under a State of Emergency declared by the governor on January 17, 2014, and recently by new ground water management bills. Both short-term (i.e., less than 6 months' duration) and long-term adverse impacts are predicted for California's agriculture, ecology, and hydrology (Mason, 2014; Artusa, 2014). See figure 1 for a map of drought intensity.

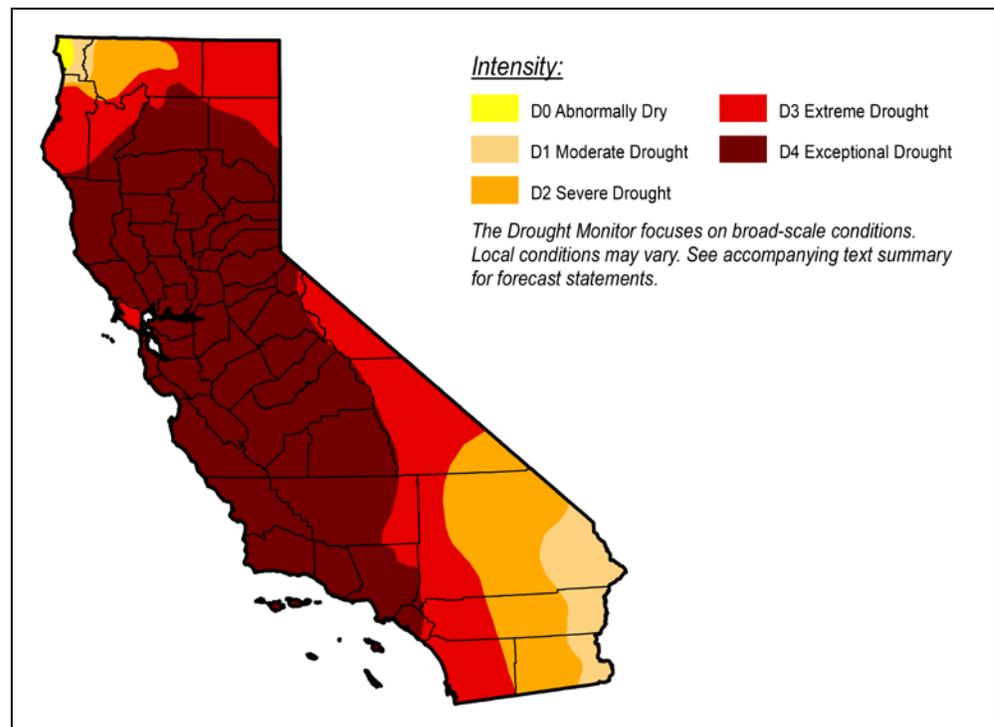


Figure 1. Drought status in California as of December 9, 2014.
(Artusa, 2014)

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, 2014). Ongoing surveys of California's waters continue to show substantial pollutant and toxicity levels; percentage increases, however, may reflect more thorough site assessment than increasing pesticide discharge and runoff (EPA, 2012).

The OFF eradication program calls for highly localized chemical applications in designated properties and no-spray buffers around all sensitive areas, including all water bodies. This method of application is designed to minimize the potential for introduction of program chemicals to local water resources.

2. Human Health

The principal concerns for human health are related to the program use of chemical pesticides including naled lure, spinosad protein bait, and methyl bromide (a fumigant). Naled is toxic to humans, birds and invertebrates. Spinosad is toxic to specific invertebrate species but is considered to be nontoxic to humans and other animals. The methyl eugenol attractant used as a lure is considered low hazard to human health (APHIS, 2014b). Limited data exists regarding the toxicity of the protein hydrolysate, however available data suggests low acute toxicity to human health. Three major factors influence the human health risk associated with pesticide use, including fate of the pesticides in the environment, their toxicity to humans, and their exposure to humans.

Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. The OFF eradication program will initially employ naled lure bait stations and traps, and ground-based targeted applications of spinosad bait. Potential exposure to naled is expected to be low because treatments are limited to spot applications of the pesticide formulation to areas of non-food plants, fence posts, utility poles and other inanimate surfaces that are not readily accessible to the general public. Commercial applications, should they become necessary, will be applied to properties owned by commercial growers and producers where exposure to the general public is unlikely. If spinosad bait application is restricted to target surfaces and made in accordance with EPA label instructions, effects to human health and the environment are expected to be incrementally negligible, and in cases where spinosad is used as a replacement for naled, are likely to be beneficial (Vargas et al., 2009). The use of methyl eugenol or protein hydrolysate as attractants in the OFF program will also result in a low risk to human health. The attractants have a low toxicity and their method of application results in a low probability of exposure and risk to workers and the general public.

Should treatment by methyl bromide fumigation be indicated, adherence to EPA label restrictions and application in enclosed areas or containers will protect applicators and the general public from risk of exposure to the fumigant (APHIS, 2007 and 2002).

The analyses and data of EIS1 and EIS2 and the associated human health risk assessments indicate that exposures to pesticides from normal program operations are not likely to result in substantial adverse human health effects. (Refer to EIS1 and EIS2 (APHIS, 2001 and 2008) and the human health risk assessments (APHIS, 2014b, 1999 and 1998a) for more detailed information relative to human health risk.)

Another mitigation measure designed to minimize exposure of humans to program pesticides is the requirement for public notification. Information

concerning the OFF eradication project will be shared via press releases and media announcements to the general public. Either the county agricultural commissioner or public information officer will serve as the primary contact to the media. Any resident with property to be treated will be notified in writing at least 48 hours prior to treatment. Following the treatment, notices will be left with homeowners detailing precautions to take and safe intervals of time that should elapse before harvesting fruit on the property. Treatments are repeated at 7-14 day intervals for one life cycle of the fly (typically one to two months, sometimes longer dependent on temperature) (CDFA, 2014a). To adequately notify diverse populations, APHIS anticipates distributing brochures describing the program in several languages (Chinese, English, Japanese, Korean, Spanish, Tagalog, and Vietnamese), as well as Braille.

APHIS recognizes that a small portion of the population may have greater than usual sensitivity to certain chemicals, and that program treatments may pose higher risk for these individuals. Special communication strategies to mitigate this risk are discussed in detail in appendix C of EIS1 (APHIS, 2001).

Should strong wind or rainfall be forecast for the program area, trap placement and chemical applications may need to be rescheduled. Site inspections will continue to ensure that existing program treatments are not likely to affect humans. The destruction or relocation of traps and treatments due to weather events is unlikely to result in adverse impacts to the human environment, as the potential toxicity should be greatly reduced by dilution in the storm's water and air.

In general, 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. A no-action alternative is not expected to eliminate OFF as readily or as effectively as the eradication alternative. Over a protracted period of no action, there would likely be broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts to human health.

3. Other Aspects of the Human Environment

The National Historic Preservation Act of 1966, as amended (NHPA; 16 U.S. Code § 470 et seq.) requires Federal agencies to consider the impact on properties included in, or eligible for inclusion in, the National Register of Historic Places (36 Code of Federal Regulations § 63). The Archaeological Resources Protection Act of 1979 (16 U.S. Code §§ 470aa-mm), secures the protection of archaeological resources and sites on public and Indian lands. Federal agencies identify and address disproportionately high and adverse human health or environmental effects of its proposed activities as described in Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority

Populations and Low-Income Populations” and Executive Order 13045, “Protection of Children from Environmental Health Risks and Safety Risks”.

APHIS considered the potential environmental impacts of implementing the action alternatives on minority and/or low-income communities, tribal interactions, and historical and culturally sensitive sites in the program area. A lack of Federal action could result in adverse economic and health impacts on affected producers and consumers, such as decreased harvests, higher consumer prices, loss of employment, reduced nutritional options, loss of market share, compromised mental and physical health, loss of property, etc.

At this time, implementation of the preferred alternative is not expected to adversely impact historic or culturally sensitive sites within Los Angeles County. APHIS intends to restrict program treatments and activities to an as-needed basis in order to protect these sites. The proposed action will not disturb the ground. If APHIS discovers any archaeological resources, the appropriate individuals will be notified.

a. Native American Considerations

Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments,” pledges agency communication and collaboration with tribal officials when proposed Federal actions have potential tribal implications. Using the Native American Graves Protection and Repatriation Act Online Databases (NPS, 2014; 25 U.S. Code § 3001 et seq.), APHIS determined there are not any registered Native American Tribes in Los Angeles County. The nearest, Pechanga Indian Reservation, is 85.0 miles away. The program area contains ceded lands from the Carl-l-se, Cas-take, Ho-lo-cla-me, Hol-mi-uk, Se-na-hu-ow, So-ho-nut, Te-jon, To-ci-a, and Uva Tribes. None of these Tribes are federally recognized under NHPA; only federally recognized Tribes are able to participate in Section 106 consultation. To the extent that program activities will reduce potential pest effects on vegetation on these ceded lands, the program will enhance their value.

APHIS does not expect any Tribes to be affected by program activities. The proposed action will not disturb the ground so it is unlikely to affect Native American sites or artifacts. If OFF detections warrant expansion of the program area onto Tribal lands, program officials will contact local Tribal Historic Preservation Officers before taking further action.

b. Other Considerations within the Human Environment

APHIS has initiated consultation with the State Historic Preservation Office (SHPO) for this fruit fly eradication program in Los Angeles County. In general, APHIS fruit fly program needs are deemed compatible with the preservation of historic sites across the State because most fruit fly control activities can be non-obviously integrated into the site. There are more than 500 registered historic sites in Los Angeles County, and only 5 are located within 4.5 miles of the current quarantine area. The majority of historic sites are buildings with associated landscaping, including many former and current branches of the Los Angeles Public Library.

To ensure historic properties will not be adversely affected by the proposed action, APHIS will use bait treatments and if absolutely necessary, fruit stripping by hand at these sites. APHIS will not conduct aerial chemical applications at locations with historical or archeological importance. APHIS does not anticipate using hand spraying with a backpack sprayer, but this may be permitted after consultation with the SHPO. Any modifications of normal program activities are designed to reduce pesticide release at these locations.

In Los Angeles County, 47.7 percent of the population identifies itself as Hispanic or Latino, and 13.7 percent of the population identifies itself as Asian. In addition, 56.8 percent of individuals in Los Angeles County speak a language other than English at home (USCB, 2014c). To meet the needs of these individuals, advance notice of program activities and potential exposure hazards in a variety of languages will be provided to members of non-English-speaking populations. Similar advanced notice will be provided to people in areas that lack access to news media.

The preferred alternative does not pose any disproportionate adverse effects to children, despite the presence of parks and numerous schools within the quarantine area, because children are unlikely to be present when APHIS applies treatments. Any exposure of children to applied products is negligible based on the program's application methods and the product formulations.

4. Nontarget Species

The principal concerns for nontarget species, including threatened and endangered species, relate to potential harm from the use of program insecticides to eradicate OFF populations. Paralleling human health risk, the risk to nontarget species is related to the insecticides' fate in the environment, their toxicity and exposure to nontarget species. APHIS' OFF programs are designed to prevent the introduction of program chemicals into nontarget areas.

All of the insecticides considered in this EA are highly toxic to invertebrates, although the likelihood of exposure (and thus, impacts) varies a great deal from insecticide to insecticide and with the specified use pattern. In general, a well-coordinated OFF eradication program using IPM technologies would result in the least use of chemical pesticides, overall, with minimal adverse impacts to nontarget species. The no action alternative is potentially less effective at eliminating OFF, and would be expected to result in broader and more widespread use of insecticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts.

Should strong wind or rainfall be forecast for the program area, trap placement and chemical applications may need to be rescheduled. Site inspections will continue to ensure that existing program treatments are not likely to affect nontarget organisms. The destruction or relocation of traps and treatments due to weather events is unlikely to result in adverse impacts to animal species and their habitats, as the potential toxicity should be greatly reduced by dilution in the storm's water and air.

The MAT portion of the OFF eradication program will employ naled lure bait stations and traps. The pesticide ingredient, naled, is practically nonpersistent in the environment, with reported field half-lives of less than 1 day. It rapidly degrades in the presence of sunlight and is not strongly bound to soils. It is rapidly broken down if wet (a reported half-life of about 2 days), and it is moderately volatile (Extoxnet, 1996). Potential exposure of nontarget species to naled is expected to be low because treatments are limited to spot applications of the insecticide formulation to areas of non-food plants, fence posts, utility poles and other inanimate surfaces that are not readily accessible to most nontarget species. Methyl eugenol, the lure ingredient in the bait station formulation, is considered moderately toxic to mammals if ingested and can attract certain nontarget invertebrates (APHIS, 2014b). The attractant used in the OFF bait stations poses a slight risk to certain terrestrial invertebrates that are attracted to the bait due to the presence of methyl eugenol, and they could receive a lethal dose of naled. However, based on the selective nature of the attractant, the impacts would be localized and transient and not anticipated to result in population level effects to sensitive taxa including beneficial arthropods.

The OFF eradication program will also apply a targeted, ground-based foliar bait treatment for a breeding OFF population. For this, host trees and plants within a 200-meter radius of the OFF find site are treated with a highly localized spray that consists of an organic formulation of the insecticide spinosad and protein hydrolysate bait. Protein hydrolysate is a common attractant used in fruit fly treatments, increasing the efficacy of chemical applications and reducing the area of insecticide treatments

needed for control (Prokopy et al., 1997). OFF are attracted to the protein hydrolysate where they then receive a lethal dose of the insecticide (spinosad) that is mixed with the attractant. The protein hydrolysate is expected to have minimal impacts to environmental quality based on its use pattern and rapid degradation and would not result in impacts to nontarget species. The insecticide 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; however spinosad is considered highly toxic to honey bees. 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 (APHIS, 2014b).

For the fumigant methyl bromide, the sealed methods for its application are designed to protect non-target species by preventing their exposure to the pesticide (APHIS, 2007 and 2002). Potential cumulative impacts of methyl bromide released to the global environment are considered in section 6 of this chapter.

Sites near the program area that might require special consideration, should the program area expand, include irrigation canals, coastal wetlands, and salt lakes of potential ecological importance. No program chemical applications will be permitted at these sites or within refuges or other protected areas. Fruit survey and surveillance trapping will continue, and fruit stripping by hand will be undertaken if OFF detections occur at such locations.

a. Migratory Birds

The Migratory Bird Treaty Act of 1918 (16 U.S. Code 703–712) established a Federal prohibition, unless permitted by regulations, to pursue, 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, any migratory bird or any part, nest, or egg of any such bird.

Executive Order 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 (FWS) that promotes the conservation of migratory bird populations. On August 2, 2012, an MOU between APHIS and FWS

was signed to facilitate the implementation of this Executive order.

More than 500 species of birds have been documented in Los Angeles County (LA Audubon, 2006). This southern region of California, which is part of the Pacific Flyway, is an important migration corridor that provides suitable habitat for many bird species. APHIS evaluated the proposed OFF program in terms of potential impact on migratory avian species. Implementation of the preferred alternative is not expected to have any adverse effect on migratory birds or their flight corridors. The proposed program would not involve removal or disturbance of any trees, shrubs, or other vegetation on the project site that could be used by birds. In addition, birds would not be exposed to program treatments because of the targeted nature of the applications.

b. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) and ESA's implementing regulations require Federal agencies to consult with the FWS and/or the National Marine Fisheries Service 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. APHIS coordinates with the FWS Ecological Services Field Office, as well as with State authorities, before implementing OFF program activities. FWS reviews maps of the quarantined area and notifies APHIS if listed species are present in the program area. If listed species are present, APHIS implements protection measures for those species as approved by FWS.

APHIS reviewed the program area and proposed treatment activities for the potential co-occurrence of federally listed species and critical habitat to determine if any proposed program treatments may affect listed species or critical habitat. APHIS examined the program area and adjacent regions for the presence of listed species and critical habitat and did not identify any potential co-occurrence of listed species or critical habitat. Because the current program activities are limited to developed residential areas, APHIS has determined there is no potential for effects to listed species or critical habitat. Should the program area expand or further outbreaks be detected that are not considered herein, APHIS, in cooperation with CDFG, will consult with FWS and other appropriate agencies, as necessary. A complete administrative record of this review is available upon request. (Refer to EIS1 and EIS2 (APHIS, 2001 and 2008) and the supporting nontarget risk assessments (APHIS, 2014b, 2003 and 1998b) for more information on risks to all classes of nontarget species.)

5. Environmental Quality

The principal environmental quality concerns are for the protection of air quality, water quality, and the minimization of the potential for environmental contamination. In relation to preserving environmental quality, program pesticides remain the major concern for the public and the program. Although program pesticide use is limited, especially in comparison to other agricultural pesticide use, the proposed action would result in a controlled release of chemicals into the environment. The fate of those chemicals varies with respect to the environmental component (air, water, or other substrate) and its characteristics (temperature, pH, dilution, etc.). The environmental fates of naled, spinosad, methyl eugenol and methyl bromide are outlined below. Refer to EIS1 and EIS2 (APHIS, 2001 and 2008) and the risk assessments (APHIS, 2014b, 2003, 1998a and 1998b) for a more detailed consideration of program pesticides' environmental fates. The protein hydrolysate is expected to have minimal impacts to environmental quality based on its use pattern and rapid degradation and would not result in impacts to environmental quality beyond those described for the below chemicals.

- **Naled** is practically nonpersistent in the environment, with reported field half-lives of less than 1 day. It rapidly degrades in the presence of sunlight. Naled is not strongly bound to soils. It is rapidly broken down if wet (a reported half-life of about 2 days), and it is moderately volatile. Soil microbes break down most of the naled in the soil; 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 (Exttoxnet, 1996).
- **Spinosad** is not considered mobile in soil: 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 day. 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 (APHIS, 2014b; Kollman, 2003).
- **Methyl eugenol (ME)** is a volatile compound. In the atmosphere, ME is degraded by reaction with hydroxyl radicals. ME is not

expected to undergo hydrolysis in the environment. In water it adsorbs moderately well to suspended solids and sediment. ME is expected to have high mobility in soil. Dissipation of ME from soil and from water is slower in colder temperatures. Half-lives of ME are estimated to be 5 hours in the atmosphere, 8 days in soil, 8 days in water, and 32 days in sediment (APHIS, 2014b).

- **Methyl bromide (MB)** will not be used as an eradication treatment, but may be employed as a regulatory treatment. MB volatilizes into air from soil and water, and is known to contribute to stratospheric ozone depletion. 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. 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, but is not considered a major contaminant of ground water (NPIC, 2000). The small quantities used to treat for OFF disperse when fumigation chambers are vented. See section 6 of this chapter regarding MB's potential cumulative impacts to the environment.

Urban and agricultural runoff may flow directly into local waters, picking up trash, dirt, chemicals, and other contaminants along the way. If treatment may occur in close proximity to a body of water, where pesticides may be directly discharged into the water, CDFA will analyze the environmental setting and establish site-specific best-management practices to follow. This method of application directly to host plants minimizes drift and runoff. Mitigation measures will be applied to protect marine and freshwater resources. Program personnel will maintain a minimum distance of 30 meters (98 feet) from surface water and when applying pesticides will adhere to label direction, State and Federal laws, and recommendations of environmental compliance staff. Water body contact is not anticipated in *Bactrocera* spp. programs.

The alternatives were compared with respect to their potential to affect environmental quality. Risk to environmental quality is considered minimal for the preferred alternative. Again, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall, with minimal adverse impacts on environmental quality. The no action alternative would likely result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts.

The proposed program area was examined to identify characteristics that would tend to influence the effects of program operations.

Potentially sensitive areas were identified, considered, and accommodated, as necessary, through special selection of control methods and use of specific mitigation measures. Allowances were made for the special site-specific characteristics that would require a departure from the standard operating procedures. The approaches used to mitigate for adverse impacts to bodies of water are described in EIS1 (APHIS, 2001).

6. Cumulative Impacts

This section considers the potential of the alternatives to cause cumulative impacts on the human environment. Not taking Federal action is expected to result in the cumulative impacts that arise from tolerating uncontrolled OFF infestations in the United States. APHIS considered implementation of the preferred alternative in the context of, and in conjunction with, other pest insect eradication and quarantine projects in the program area as well as other actions and activities known to be affecting the human environment.

Current and future in-State OFF programs could potentially be merged into one larger program area. When an OFF eradication program is combined with trapping and eradication actions in other California counties, a beneficial cumulative impact on the environment is expected, namely, less OFF damage to fruit and fewer chemical treatments because of the reduction in the OFF population.

The OFF program for Los Angeles (Inglewood region) was examined for potential synergistic and cumulative environmental impacts. Program pesticides approved for use against OFF are also prescribed treatments for other *Bactrocera* species programs. As of December 16, 2014, there are five active treatment sites in California targeted at *Bactrocera* species: specifically, Oriental, guava and peach fruit fly infestations in Los Angeles, Contra Costa, and San Diego Counties (CDFA, 2014p). At this time, none of these treatment sites have overlapping boundaries. Due to the passage of time and the prevailing weather conditions since April 2014 no chemical residues are believed to remain from the Los Angeles/Orange County OFF program that could result in additive or synergistic chemical effects with previous program chemical applications. Use of program pesticides in an OFF program that overlaps another *Bactrocera* spp. program should be monitored and adjusted, where necessary, to minimize environmental impacts.

No significant environmental impacts are expected to result from proper implementation of this OFF eradication and control program. The differences in pesticide chemistries, targets for application, affected species and resources, and application timing between the OFF program and other pest control programs in California are not likely to create significant cumulative impacts in the human environment. No synergistic

or cumulative impacts from pesticide applications are expected with the following active programs (CDFA, 2014q)—

- Asian citrus psyllid in 11 counties including Los Angeles County;
- glassy-winged sharpshooter in 43 counties, not including Los Angeles County.

Care should be taken, however, when multiple pest species in the same area are targeted for treatment using the same chemical. Spinosad, for example, has other labeled food and non-food uses and is currently used in a variety of pest control efforts, including the control of termites and European grapevine moth (APHIS, 2014b). Implementation of an OFF eradication program could lead to an increase in spinosad use and the possible overlap of APHIS and non-APHIS program treatments. Additional programs in place at the time of preparation of this EA which may employ spinosad treatments (CDFA, 2014q) that could combine with OFF spinosad treatments to have a cumulative impact have been designed to target the following—

- European grapevine moth in 31 California counties, including Los Angeles County;
- light brown apple moth in portions of many California counties, including portions of Los Angeles County.

There are no significant cumulative impacts anticipated as a consequence of implementing the preferred alternative or its component treatment measures. The preferred alternative is designed for pesticide applications to avoid overlapping treatment areas and prevention of non-target exposure until pesticide residues have weathered.

APHIS has determined that uses of MB for fruit fly quarantine treatments pose negligible potential for cumulative impacts to the environment. For information on potential depletion of the ozone layer related to MB released into the atmosphere, see the “Rule for the Importation of Unmanufactured Wood Articles from Mexico, with Consideration for Cumulative Impact of Methyl Bromide Use, Final Environmental Impact Statement” (APHIS, 2002) and subsequent analyses, such as the “Importation of Solid Wood Packing Material, Supplement to the Final Environmental Impact Statement” (APHIS, 2007).

There were no residual impacts from previous Federal and non-Federal actions targeting fruit fly infestations in the State of California, and there are no reasonably foreseeable future actions that could result in incremental increases in environmental effects. Based on APHIS’ review of the context and intensity of the existing, ongoing, and potential future treatments, there will be no cumulative impacts to the human environment resulting from

this OFF eradication program.

As discussed previously, additional actions may be implemented in this program, including additional quarantines and regulatory treatments. The anticipated use of these treatments is considered to pose minimal risk to the human environment, as determined in EIS1 and EIS2 (APHIS, 2001 and 2008), and the nontarget species and human health risk assessments (APHIS, 2014b, 2003, 1999, 1998a, and 1998b).

IV. Agencies Consulted

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
Center for Plant Health Science and Technology
1730 Varsity Drive, Suite 400
Raleigh, NC 27606

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
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

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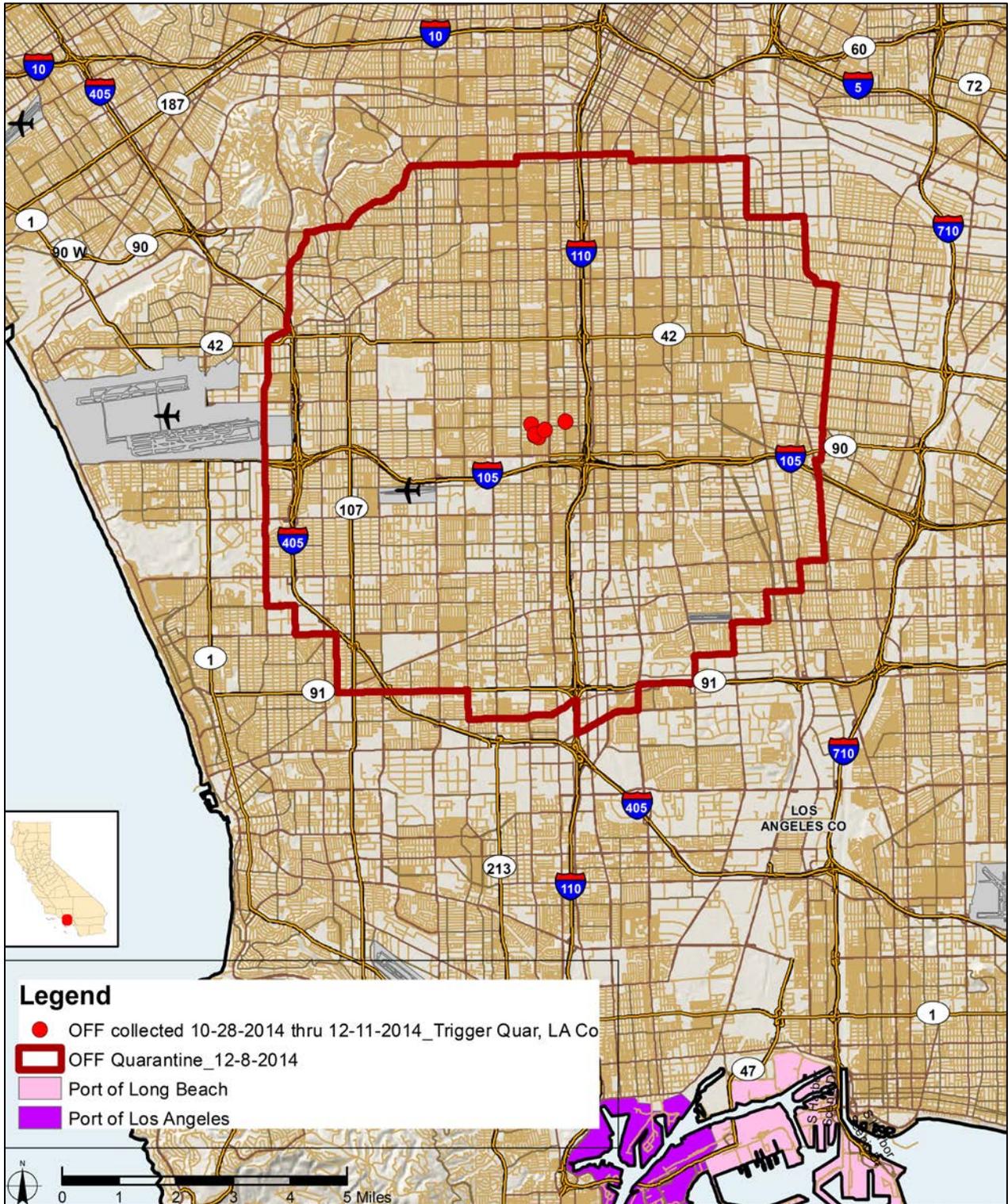
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Appendix A. OFF Program in Los Angeles County, California—December 8, 2014



(USDA-APHIS-PPQ)

Appendix B. Outside-APHIS Spatial Data Resources Used to Prepare This Document

The following resources were used by USDA-APHIS-ERAS on 11 December 2014.

Web-Based Mapping Application for Environmental Assessments

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

For information on

- **Places:** <http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Places/MapServer>
- **Transportation:**
<http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Transportation/MapServer>
- **Water:** <http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Water/MapServer>
- **Nonattainment Areas:**
http://geoplatform2.epa.gov/arcgis/rest/services/PM_Designations_Mapping/Nonattainment_Areas/MapServer
- **Boundaries:**
<http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Boundaries/MapServer>
- **Bing Maps Road:** <http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>
- **Organic farms:** <http://www.ams.usda.gov/AMSV1.0/nop>
- **Historic Sites:** <http://www.nps.gov/nr/>
- **Native American Areas:** <http://viewer.nationalmap.gov/>