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Mediterranean Fruit Fly Cooperative Eradication Program

Los Angeles County, California

Environmental Assessment March 2014

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I. Need for the Proposal

The Mediterranean fruit fly (Medfly), *Ceratitis capitata* (Wiedemann), is a major pest capable of devastating crops throughout many parts of the world. Because of its wide host range (over 250 species of fruits and vegetables) and its potential for rapidly expanding infestation, the Medfly represents a serious threat to U.S. agriculture. Medfly was detected in Hawaii in 1910, and subsequently became established there (NAPIS, n.d.). Although Medfly has been periodically introduced to the U.S. mainland since 1929 (APHIS, n.d.), successful eradication programs have prevented it from becoming an established pest in the conterminous United States.

Medfly establishment would be disastrous to agricultural production in states where host plants are grown. The unchecked presence of Medfly on the U.S. mainland would result in widespread destruction of crops such as apricot, avocado, grapefruit, nectarine, orange, peach, and cherry. Commercial crops, as well as dooryard production of host fruits, would suffer if Medfly populations became established. Fruit by Medfly is unfit to eat because the larvae tunnel through the fleshy part of the fruit, damaging it and subjecting it to decay from bacteria and fungi.

On March 4, 2014, one unmated female carrying unfertilized eggs was detected in a citrus host in a residential area of the city of Los Angeles, Los Angeles County, California (CDFA, 2014a). Delimitation and larval surveys outward from the detection site were initiated. Three more Medfly females, unmated but sexually mature and carrying eggs, were found in traps on March 10, in citrus and loquat hosts fewer than 3 miles from the first detection (CDFA, 2014b, 2014c, and 2014d). The four detections were confirmed as Medfly, leading to the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) proposal of a quarantine and control program for this outbreak.

On March 12, two additional adult Medfly detections were made in the same locality: 1 wild adult male and 1 wild unmated female (CDFA, 2014e and 2014f). Discovery of live Medfly larvae in the vicinity of the sixth fly find was made on March 18 (CDFA, 2014g). An additional adult fly was captured on March 19 and another Medfly larva was found on March 25— both finds within the quarantine boundary (CDFA, 2014h and 2014i).

The present infestation is within a residential area of the city of Los Angeles; the danger of the infestation spreading to commercial production areas and to potential host crops in the rest of the State requires program decision makers to consider and propose emergency regulatory quarantines and treatments. In addition to some commercial production, many host plant species are grown privately in Los Angeles County. This

increases the likelihood of detections as well as the potential environmental impact of infestations. Wholesale produce markets and fruit stands in areas where the fruit fly infestation has been identified may be affected. There are a number of plant nurseries but no commercial host production within a 4.5 mile radius of the Medfly detections. Grapes, avocado and citrus are raised commercially about 15 miles from the infestation (APHIS, 2014). This Medfly infestation is the first detected in California in 2014, and represents a major threat to the agriculture and environment of California and other U.S. mainland States.

California pursues an ongoing Medfly detection and eradication program. APHIS and the California Department of Food and Agriculture (CDFA) are proposing a cooperative program to eradicate the Medfly infestation and prevent the spread of Medfly 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. As of 2014, every targeted fruit fly population in California has been successfully eradicated, including every Medfly infestation (CDFA, n.d.). Two recent examples are the Mediterranean Fruit Fly Cooperative Eradication Program in Rancho Cucamonga, San Bernardino County (APHIS, 2012), and the Mediterranean Fruit Fly Cooperative Eradication Program in Los Angeles County, almost 4½ years ago (APHIS, 2009).

This environmental assessment (EA) considers the environmental consequences of alternatives evaluated for Medfly eradication, and also considers, from a site-specific perspective, environmental issues relevant to this particular fruit fly program. Alternatives for Medfly eradication were discussed and comprehensively analyzed 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" (EIS 1) (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" (EIS 2) (APHIS, 2008). Each environmental impact statement (EIS) considers fruit fly risks and mitigations at the programmatic level. This site-specific EA incorporates the findings of each EIS by reference.

The eradication measures being considered for this program have been discussed and analyzed comprehensively within the fruit fly chemical risk assessments (APHIS, 1998a and 1998b) and risk assessments for spinosad (APHIS, 2003 and 1999). 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 documents](#) and [APHIS GE control applications for plant health](#).

II. Alternatives

The alternatives considered for this proposed program include (A) no Federal action, (B) quarantine and commodity certification, and (C) eradication using an integrated pest management (IPM) approach (the preferred alternative). Component techniques of alternative C include the use of chemical pesticides to facilitate the timely elimination of the current Medfly infestation.

A. No Action

The no action alternative would involve no Federal effort to eradicate Medfly or restrict its expansion from the currently infested area. In the absence of a Federal effort, quarantine and control would be left to the State and local governments, grower groups, and individuals. Expansion of the infestation would be influenced by the proximity of host plants, climatic conditions, and any control measures applied in the area. It should be noted that “no treatment” might be the only reasonable alternative for some sensitive sites. In such locations, a lack of action could lead to a continuing and expanding infestation. Under the no action alternative, APHIS would continue cooperative practices to support CDFA detection trapping and research. An expansion of the infestation would likely result in substantial economic losses to growers in the United States and loss of U.S. export markets.

B. Quarantine and Commodity Certification

This alternative combines a Federal quarantine with commodity treatment and certification, as stipulated under Title 7 of the Code of Federal Regulations (CFR) part 301.32. Regulated commodities harvested within the quarantine area would not be allowed to move unless treated with prescribed applications and certified for movement outside the area. For a large infestation, intensive quarantine enforcement activities could be necessary, including safeguarding of local fruit stands, mandatory baggage inspection at airports, and judicious use of road patrols and roadblocks. The quarantine actions of this alternative would result in a reduction of Medfly flights from treated crops, and a reduction of human-mediated

movement of Medfly in host plant materials to areas outside the quarantined area; however, the infestation could remain established within the quarantine boundaries. Any Medfly eradication efforts would be managed by, and wholly under the control of, CDFA.

Interstate movement of regulated commodities would require the issuance of a certificate, or limited permit, contingent upon commodity treatment or the grower or shipper complying with specific conditions designed to minimize pest risk and prevent the spread of Medfly. Eradication methods that may be used in this alternative include (1) regulatory chemicals, (2) cold treatment, (3) vapor heat treatment, and (4) irradiation treatment. Regulatory chemical treatments may include fumigation with methyl bromide, and bait spray with a mixture of protein hydrolysate bait and either spinosad or malathion. (Refer to EIS 1 (APHIS, 2001) for more detailed information about these chemicals and their uses.) Cold treatment, vapor heat treatment, or irradiation treatment of certain produce, as a requirement for certification and shipping, must be done in facilities that are inspected and approved by APHIS.

C. Eradication Using an IPM Approach (Preferred Alternative)

APHIS' preferred alternative for the Los Angeles Medfly program is eradication using an IPM approach. This alternative combines quarantine and commodity certification with eradication treatments. For many species of exotic fruit flies, effective nonchemical control or eradication techniques do not exist (APHIS, 2001). CDFA has determined that are no cultural or natural enemy biological controls that are effective to eradicate Medfly and allow the CDFA to meet its statutory obligations (CDFA, 2014j). Eradication efforts may therefore include any or all of the following:

- chemical control,
- sterile insect technique (SIT),
- physical control,
- cultural control, and
- regulatory controls (such as quarantines, permits, and certification programs).

APHIS' and state cooperative Medfly programs in California have well-established procedures and treatments. The current Los Angeles program for Medfly eradication will be conducted by APHIS and state-approved personnel on quarantined properties, using chemical formulations and ground-based treatment protocols approved by APHIS and CDFA. To

view the program area¹ proposed for eradication (treatment application) and regulatory (quarantine) action, see the map in appendix A. (For more detailed information on the alternatives for Medfly control and their component methods see the previously mentioned fruit fly risk assessments (APHIS, 2003, 1999, 1998a, and 1998b)).

The current eradication zone involves part of the city of Los Angeles, in Los Angeles County, California. Delimitation, treatments and monitoring are carried out for approximately 87 square-miles around each property on which an adult fly has been trapped, or on which another life stage of Medfly is detected. Biological control (SIT) is used in conjunction with targeted chemical control (spinosad bait spray). Fruit sampling is employed around each detection property, and fruit removal occurs where there is evidence of a breeding population (CDFA, 2014j).

Several types of traps—including McPhail, Multilure® and trimedlure Jackson—are used to delimit the infestation and to determine the efficacy of treatments. All monitoring traps will be serviced for a period equal to three Medfly life cycles beyond the date of the last fly detection. The treatment plan for Medfly includes ground-based applications of an organic formulation of spinosad bait to the foliage of all host trees and plants within a 200-meter radius of each detection site. This treatment will occur at 7 to 10 days for one life cycle beyond the last Medfly detected (CDFA, 2014j).

SIT will be also be used on the Medfly infestation—the eradication area will receive a periodic release of sterilized male Medflies in order to disrupt the reproduction cycle and control the wild population. Releases will be repeated twice a week to achieve a weekly release rate of 250,000 flies per square mile, and will continue for two life cycles beyond the last Medfly detection date. Larval surveys are conducted 200 meters around any property where a Medfly is trapped. Where Medfly larvae are discovered, fruit from the infested property and up to 100 meters around the find site is removed and taken for disposal under regulatory compliance (CDFA, 2014k).

The public will be notified 24 to 48 hours prior to insecticidal treatment, and will be provided with guidelines for post-treatment precautions and harvest protocols. Generally, treatments will be repeated every 7 to 14 days for one Medfly life cycle. The eradication project will continue for three life cycles past the date of the last Medfly trapped (CDFA, 2014l).

¹ For the purposes of this document, and unless specified otherwise in the text, the terms “quarantine” and “program area” signify the same place. The “eradication zone” or “core area” is found inside the program area, and is where program chemical treatments may be applied.

III. Potential Environmental Consequences

This EA analyzes the potential environmental consequences of alternatives that have been considered for Medfly control, and considers, from a site-specific perspective, environmental issues that are relevant to this particular program area. Adult Medflies can be carried a mile by the wind (UFL, 2010), making it possible for host-plant growing areas outside an eradication zone to become infested. Therefore, regulatory treatments used for movement of commercial produce are included in the event that the eradication zone should expand to include groves or orchards. Should Medfly detections lead to an expansion of the program boundary, APHIS will conduct any needed additional environmental analysis.

Alternatives for Medfly control were discussed and comprehensively analyzed in EIS 1 and EIS 2 (APHIS, 2001 and 2008), which are incorporated by reference and summarized within this EA. Control measures being considered for this site-specific program—surveillance trapping, spinosad bait application, removal of fruit from potentially infested properties, and sterile insect release—have been analyzed comprehensively within the fruit fly chemical risk assessments (APHIS, 1998a and 1998b) and risk assessments for spinosad (APHIS, 2003 and 1999). These documents are also incorporated by reference and summarized within this EA. This program area’s site-specific characteristics were considered with respect to the potential of the program to affect human health, nontarget species (including threatened and endangered species), and environmental quality. Potentially sensitive areas have been identified, considered, and accommodated through special selection of control methods and the use of specific mitigation measures.

A. No Action

Lack of federal action would place the entire burden of eradication on the State of California. Any failure of those efforts could lead to the establishment of this pest within the conterminous United States. Medflies are strong fliers, so it is unlikely that an established population will not rapidly spread beyond the current quarantine area. It is reasonable to expect that Medfly populations would continue to expand in area leading to more quarantine efforts. 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. export markets.

B. Quarantine and Commodity Certification

The quarantine actions of this alternative would result in a reduction of the human-mediated movement of Medfly in host plant materials outside the quarantine boundary. A resident population is likely to remain established within the quarantine boundaries. Any failure in quarantine actions could lead to Medfly establishment outside the program area. The commodity certification requirement would create a necessary but new layer of governmental presence in the marketplace. This situation would create inspection jobs, but restrict trade until the produce was inspected and certified for sale. Host plants would likely cease being grown for domestic use as landowners shifted to non-Medfly host plants.

C. Eradication Using an IPM Approach (Preferred Alternative)

The preferred alternative, eradication, would involve an IPM approach that may employ any or a combination of the following measures:

- no action,
- quarantine,
- regulatory chemical application (fumigation, bait spray),
- eradication chemical applications (protein bait spray),
- cold treatment,
- vapor heat treatment,
- irradiation treatment, and
- sterile insect technique (SIT).

1. Affected Environment

a. Land Characteristics and Demographics

As of March 18, 2014, the Medfly program area covers about 87 square miles of land in Los Angeles County. The area in and surrounding the infestation is a mixture of developed urban business and residential districts, highways and waterways. The closest commercial host production is approximately 15 miles away (APHIS, 2014). Although the current infestation is in a highly developed urban area, there are national forests, conservation areas, and managed Pacific Ocean shoreline within 11 miles of the program area – for more information see table 1 and appendix B.

Table 1. Distance in miles to some natural resources near the Los Angeles Medfly Program core areas.

Los Angeles River	3.39
Compton Creek	3.93
Silver Lake Reservoir	6.78
Ballona Creek	6.87
Santa Monica Mountains National Recreation Area	8.54
Angeles National Forest	9.79
Pacific Ocean	10.21
San Gabriel River	10.71

(Source: USDA APHIS PPD)

Los Angeles County includes the offshore islands of San Clemente and Santa Catalina. It is bordered on the east by Orange and San Bernardino Counties, on the north by Kern County, on the west by Ventura County, and on the south by the Pacific Ocean. Its mainland coastline is 75 miles long. The county has the highest population of any county in the United States, and is home to around 27% of California residents. Los Angeles County residents speak more than 100 languages. Tourism and international trade attract millions of visitors to the county annually (LACo, n.d.).

The city of Los Angeles is the county’s largest, reporting a population of 3,792,621 in the 2010 Census, and a land area of 468.67 square miles. The income of over 21% of its reported population is estimated to be below the national poverty level (USCB, n.d.(1)). Two large international seaports, two international airports, and numerous local airfields are located within 40 miles of the infestation. U.S. Highway 110 cuts centrally through the program area. Numerous plant nurseries and businesses are operated within the program area. The closest commercial host production – avocado, citrus, and grapes – is about 15 miles from the Medfly detection sites (APHIS, 2014).

In general, Los Angeles has a Mediterranean climate, with dry summers, rainy winters and modest temperature variations from winter to summer. At times thick fog or haze can result from conditions offshore or in the Los Angeles basin itself (mostly flat and ringed by mountains). Winds off the western mountains can gust up to 50 miles per hour, and earthquakes and mudslides may occur. Temperatures can change by 20 degrees going from the beach to the valleys; city weather is generally cool in the evening (Malloy, n.d.; Deiomia, n.d.)

The State of California is experiencing surface water loss from severe drought conditions and is controlling surface and ground water use under a State of Emergency declared by the governor on January 17, 2014. Both short (i.e., less than 6 months' duration) and long-term impacts are predicted for California's agriculture, ecology, and hydrology. See figure 1 for a map of drought intensity.

b. Water Resources

The city of Los Angeles obtains water from ground water, the Colorado River, and State water project reservoirs; aqueducts add another 50% capacity to the water system. Two of the aqueducts deliver an average of 430 million gallons a day to the city (WEF, 2006). See figure 2 for a map detailing sources of imported water to Los Angeles.

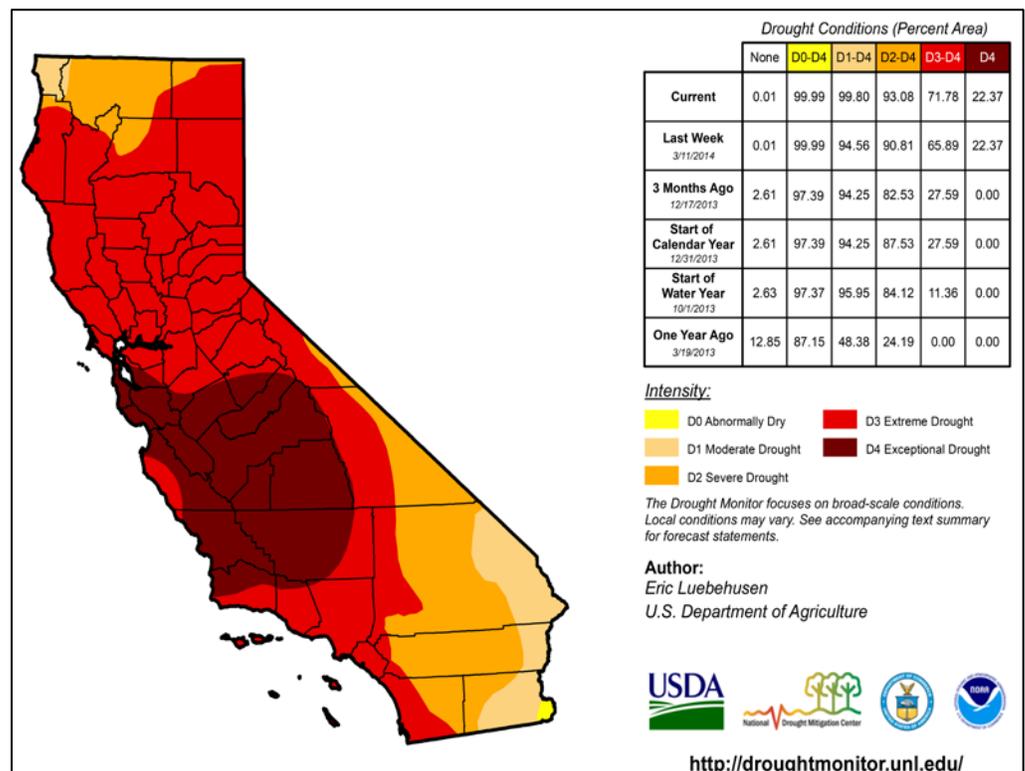


Figure 1. Drought status in California (Luebehusen, 2014).

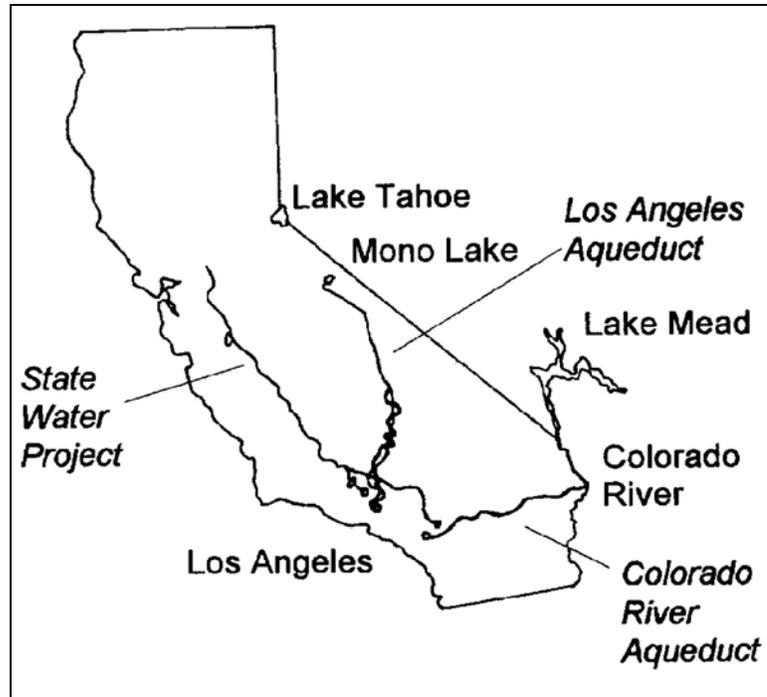


Figure 2. Imported water sources for Los Angeles (WQCB, 1995).

Los Angeles County crosses ten watersheds (EPA, 2014). The city of Los Angeles has four primary watersheds: Los Angeles River, Ballona Creek, Santa Monica Bay, and Dominguez Channel. The Medfly program area currently crosses two of them: Ballona Creek and Los Angeles River. The channelization and concreting of these two waterbodies and their tributaries to mitigate destructive flooding unintentionally created a system where urban runoff and pollution from city streets could flow untreated to Santa Monica Bay and San Pedro Bay. Today Los Angeles operates a watershed protection program, to improve water quality by reducing the amount of pollution flowing into rivers and creeks that drain into the Los Angeles River. The wetlands of Ballona Creek form part of the last significant wetland areas in Southern California (LA Stormwater, n.d.).

The Medfly program treatments are designed to prevent contamination and degradation of water quality in program area watersheds. The U.S. Environmental Protection Agency (EPA) maintains a nationwide list of impaired waters. There are two impaired waters within five miles of the Medfly detections: Los Angeles River and Compton Creek. Ongoing surveys of California's waters continue to show substantial pollutant and toxicity levels. California's governmental efforts to improve water quality continue. For example, in 2011, a dozen California waterbodies were upgraded from impaired status because they are now attaining all applicable water quality standards (EPA, 2011).

2. Human Health

Adverse effects on human health are not expected to result from program use of SIT or Medfly traps as used by the program for detection and delimitation trapping, monitoring of populations, and mass trapping (APHIS, 2001; EPA, 2008). The principal concerns for human health are related to the potential program uses of chemical pesticides. Three major factors influence the human health risk associated with pesticide use, including their exposure to humans, their toxicity to humans, and the fate of the pesticides in the environment.

Each of the chemical pesticides identified for this Medfly program is known to be toxic to humans, so exposure to these chemicals is minimized through program practices. The program use of spinosad bait is limited to ground-based applications on host plants. Most commercial applications are in groves where the general public is unlikely to become exposed. Residential neighborhoods, municipal land, and other areas of public traffic receive only targeted foliar applications. The minimal exposure to program chemicals is not likely to result in substantial adverse human health effects under normal program use patterns. Adverse impacts to human health are not expected to occur from these actions if executed properly and in accordance with label instructions (see APHIS, 2001 and 2008 and the supporting human health risk assessments (APHIS, 1999 and 1998a) for more 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 Medfly 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). To adequately notify the diverse populations in Los Angeles County, APHIS anticipates using documentation in several languages (Chinese, Japanese, Korean, Spanish, Tagalog, and Vietnamese) and Braille. The various versions will be distributed as needed.

APHIS recognizes that a small portion of the population may have greater than usual sensitivity to certain chemicals, and that program treatments may pose increased risk for these individuals. Special communication strategies to mitigate this risk are discussed in detail in appendix C of EIS 1 (APHIS, 2001).

In general, a well-coordinated eradication program using IPM technologies results in the least overall use of chemical pesticides, combined with minimizing the potential to adversely affect human health. Neither the no action alternative nor the quarantine and commodity certification alternative is likely to eliminate Medfly as readily or as effectively as the eradication alternative. Over a protracted period of time, the former alternatives would likely result in broader, 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. These indirect impacts are expected to occur to a lesser extent under the quarantine and commodity certification alternative. Adverse effects are not anticipated as a result of carrying out the preferred alternative’s surveillance activities, trapping, SIT, or program chemical applications.

At this time, implementation of the preferred alternative is not expected to have adverse impacts on historic or culturally sensitive sites that APHIS has identified within Los Angeles County and nearby in Orange County because 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

Using the Native American Graves Protection and Repatriation Act Online Databases (NPS, 2013; 25 U.S. Code § 3001 et seq.), APHIS determined there are not any registered Native American Tribes in Los Angeles County. The San Manuel Reservation is located in San Bernardino County approximately 62 miles from the quarantine boundary. The Pala Reservation is located in northern San Diego County approximately 74 miles from the quarantine boundary. The program area, however, contains ceded lands from the Buena Vista, 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. These Tribes are not 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 Medfly 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 California based on Medfly interceptions in Los Angeles County. There are more than 500 registered historic sites in Los Angeles County, and 75 are located within 4.5 miles of the current quarantine area. APHIS also considered some of the 114 historic sites located in Orange County based on closer proximity to the quarantine area than historic sites identified in Los Angeles County. The majority of historic sites in both counties appear to be buildings with associated landscaping.

To ensure historic properties will not be adversely affected by the proposed action, APHIS will not conduct aerial chemical applications at locations with historical or archeological importance. Instead, aerial SIT, surveillance trapping, and fruit stripping by hand will be permitted. Hand spraying with a backpack sprayer may be permitted after consultation with the SHPO. These modifications of normal program activities are designed to reduce pesticide release at these locations.

In Los Angeles County, 48.2 percent of the population identifies itself as Hispanic or Latino, and 14.5 percent of the population identifies itself as Asian (USCB, n.d.(2)). In addition, 56.8 percent of individuals in Los Angeles County speak a language other than English at home. 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, also relate to the program use of pesticides. Paralleling human health risk, the risk to nontarget species is related to the pesticides' exposure to nontarget species, toxicity to the nontarget species, and fate in the environment. All of the Medfly Cooperative Eradication Program pesticides are highly toxic to invertebrates; however, the likelihood of exposure (and thus, impacts) varies a great deal with the use pattern.

Current pesticide applications are limited to ground-based, foliar applications of an organic formulation of spinosad and protein bait to Medfly-host plants. These treatments target host plants in a manner that minimizes potential exposure and associated risks to nontarget species. The bait applications attract only a small number of invertebrate species other than Medfly.

The release of sterile Medflies over the eradication zone occurs after the spinosad treatment lowers the invasive Medfly population and thus reduces the population of sexually mature female Medflies. SIT is expected to have no adverse effect on nontarget species.

In general, a well-coordinated 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 and the quarantine and commodity certification alternative would be expected to result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts. (Refer to EIS 1 and EIS 2 (APHIS, 2001 and 2008) and the supporting nontarget risk assessments (APHIS, 2003, and 1998b) for more information on risks to all classes of nontarget species.)

Conservation areas in Los Angeles provide important habitat for a wide variety of wildlife that cannot be seen anywhere else in the United States. There are no National Wildlife Refuges located within the current Medfly program area. Although several city parks and recreation areas occur

within the 4.5 mile survey area around detection sites which may provide habitat for nontarget species, none occur within the proposed 200-meter treatment areas. APHIS Medfly programs are designed to prevent the introduction of program chemicals into nontargeted areas. Sites outside 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. Program chemical applications will not be permitted at these sites or within refuges or other protected areas. Aerial SIT and surveillance trapping will continue. Stripping fruit from trees by hand will be undertaken if Medfly detections occur at locations where this is the best option for fruit fly control

a. Migratory Birds

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 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.

The Los Angeles Audubon Society field list contains 491 bird species recorded in Los Angeles County, California, including Santa Catalina and San Clemente Islands and offshore waters (to the 200 mile limit) for which the nearest point of land is Los Angeles County (LAAS, 2006).

APHIS evaluated the proposed Medfly program in terms of potential impact on migratory avian species. The program area is residential area and would provide little habitat for migratory birds. Implementation of the preferred alternative is not expected to have any adverse effect on migratory birds or their flight corridors.

b. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) and ESA’s implementing regulations require Federal agencies to consult with 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 reviewed maps of the proposed program area for the co-occurrence of federally listed species and designated critical habitat. APHIS found that the proposed program area overlaps with an occurrence of the federally listed southwestern willow flycatcher. On March 13, 2014, APHIS received information from the Carlsbad FWS field office indicating that the flycatcher occurrence is based on a single report from before 1900; thus, no impacts on federally listed threatened or endangered species are anticipated for the project as described. No critical habitat for any federally listed species occurs in the program area.

Should the program area expand, new species or critical habitat are listed or designated that could occur in the program area, or there are potential effects that were not considered, APHIS, in cooperation with CDFG, will revisit this effect determination and consult with the appropriate agency, as necessary. A complete administrative record of this review is available upon request.

5. Environmental Quality

Environmental quality concerns include 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 spinosad and methyl bromide are outlined below. (Refer to EIS 1 and EIS 2 (APHIS, 2001 and 2008) for a more detailed consideration of program pesticides' environmental fates.)

- Spinosad 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, but the degradation rate is decreased at longer exposure times. Spinosad is quickly metabolized by soil micro-organisms under aerobic conditions, and has a half-life of 9.4 to 17.3 days. Because natural water bodies and rain are generally not of basic pH, spinosad will not hydrolyze in them or on moist plant surfaces. 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 5.3 days on foliar 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 (Kollman, 2003).

- Methyl bromide (MBr) fumigation will not be used as an eradication treatment, but may be employed as a regulatory treatment. MBr volatilizes into air from soil and water, and is known to contribute to stratospheric ozone depletion. The volatilization half-life for MBr from surface water ranges from 3.1 hours to 5 days. The degradation half-life of MBr in water ranges from 20 to 38 days, depending on temperature and pH. Volatilization of MBr from surface soil is rapid, with a half-life ranging from 0.2 to 0.5 day. The degradation half-life of MBr in soil ranges from 31 to 55 days. MBr has a low affinity to bind to soils, however, is not considered a major contaminant of ground water (NPIC, 2000). The small quantities used to treat for Medfly disperse when fumigation chambers are vented.

Urban and agricultural runoff may flow directly into local waters, picking up trash, dirt, chemicals, and other contaminants along the way. The Medfly eradication plan calls for ground-based spray applications to host species inside core-area boundaries and no-spray buffers around all sensitive sites, including all water bodies. (See appendix A for further information about the current core areas.) This method of application is designed to minimize the potential for harmful introduction of program chemicals to local marine and freshwater resources.

The alternatives were compared with respect to their potential to affect environmental quality. Risk to environmental quality is considered minimal. 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 and the quarantine and commodity certification 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 EIS 1 (APHIS, 2001).

6. Cumulative Impacts

The program was considered with respect to the potential to cause cumulative impacts on the human environment. Specifically, APHIS considered implementation of the preferred alternative in the context of other pest insect eradication and quarantine projects in Los Angeles County, and in conjunction with other pest projects in the rest of the California.

Current and future in-State Medfly programs could potentially be merged into one larger program area. California conducts continual surveillance trapping and monitoring in designated counties at risk of Medfly infestation. As of March 17, 2014, Los Angeles contains the only eradication zone designated for Medfly in the State of California. The nearest and most recent Medfly quarantine in the Rancho Cucamonga area of Los Angeles and San Bernardino Counties was lifted on March 15, 2013 (CDFA, 2014k). Trapping and surveys for Medfly continue in Los Angeles County under the statewide fruit fly detection and monitoring program, and sterile Medflies will continue to be released there as a preventive measure (CDFA, 2014l). When combined with trapping and SIT releases in other California counties, a beneficial cumulative impact on the environment is expected, namely, less Medfly damage to fruit and fewer chemical treatments because of the reduction in the Medfly population. Due to the passage of time and the prevailing weather conditions since September 2010, no chemical residues are believed to remain from the Los Angeles Medfly program that could result in additive or synergistic chemical effects with previous program chemical applications.

The treatments for potentially overlapping pest management programs in California target different insects and do not affect the same nontarget organisms. Additional programs (CDFA, 2014m and 2014n) in place at the time of preparation of this EA have been designed to target the following—

- Oriental fruit fly in Los Angeles and Orange Counties;
- glassy-winged sharpshooter/Pierce's Disease—Statewide (Los Angeles County identified as one of the infested counties);
- European grapevine moth in 31 California counties (including Los Angeles County);
- light brown apple moth—northern, central and southern CA regions (Los Angeles County has several quarantine areas); and

- pink bollworm control in 16 counties (not including Los Angeles County).

There are no significant cumulative impacts anticipated as a consequence of implementing the preferred alternative or its component treatment measures. 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 Medfly 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 a minimal risk to the human environment, as determined in EIS 1 and EIS 2 (APHIS, 2001 and 2008) and the nontarget species and human health risk assessments (APHIS, 2003, 1999, 1998a, and 1998b).

IV. Agencies Consulted

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 Risk and 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

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

V. References Cited

APHIS—See U.S. Department of Agriculture, Animal and Plant Health Inspection Service

California Department of Food and Agriculture, 2014a. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06168528. Date Collected: March 4, 2014.

California Department of Food and Agriculture, 2014b. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06168531. Date Collected: March 10, 2014.

California Department of Food and Agriculture, 2014c. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06168532. Date Collected: March 10, 2014.

California Department of Food and Agriculture, 2014d. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06168533. Date Collected: March 10, 2014.

California Department of Food and Agriculture, 2014e. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06168534. Date Collected: March 12, 2014.

California Department of Food and Agriculture, 2014f. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06168535. Date Collected: March 12, 2014.

California Department of Food and Agriculture, 2014g. Plant Health and Pest Prevention Services. Pest and Damage Record. PDR Number AM0P06255434. Date Collected: March 18, 2014.

California Department of Food and Agriculture, 2014h. Plant Health and Pest Prevention Services. Pest and Damage Record. PDR Number SA0P06168537. Date Collected: March 19, 2014.

California Department of Food and Agriculture, 2014i. Plant Health and Pest Prevention Services. Pest and Damage Record. PDR Number CE2P06161731. Date Collected: March 25, 2014.

California Department of Food and Agriculture, 2014j. Official Notice for the City of Los Angeles: please read immediately. Proclamation of an eradication project regarding the Mediterranean Fruit Fly. Signed March 12, 2014 by Secretary Ross. 16 pp.

California Department of Food and Agriculture, 2014k. Mediterranean Fruit Fly Quarantine in California: State Interior Quarantine. [Online]. Available: <http://pi.cdfa.ca.gov/pqm/manual/pdf/403.pdf> [2014, Mar. 17]

California Department of Food and Agriculture, 2014l. Preventive Release Program: Background, page 1. Trapping and Detection, p. 13. [Online]. Available: <http://www.cdfa.ca.gov/plant/pdep/prpinfo/pg1.html> [2013, Mar. 17]

California Department of Food and Agriculture, 2014m. Pierce's disease control program: 2013 annual report to the legislature. Published February 2014. [Online]. Available: <http://www.cdfa.ca.gov/pdcp/Documents/LegReport/2013LegReport.pdf> [2014, Mar. 17].

California Department of Food and Agriculture, 2014n. Pest exclusion: Interior program. Quarantines in California. [Online]. Available: <http://www.cdfa.ca.gov/plant/pe/InteriorExclusion/quarantine.html> [2014, Mar. 17]

California Department of Food and Agriculture, n.d. New Release: Mediterranean Fruit Fly Eradicated from California. Release #14-011 [Online]. Available: http://www.cdfa.ca.gov/egov/Press_Releases/Press_Release.asp?PRnum=14-011&print=yes [2014, Mar. 25]

California Regional Water Quality Control Board, Los Angeles Region, 1995. Water quality control plan, Los Angeles region. Basin plan for the coastal watersheds of Los Angeles and Ventura Counties. Introduction. Last modified January 8, 2002. [Online]. Available: http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/basin_plan/electronics_documents/bp1_introduction.pdf [2014, Mar. 17]

CDFA—See California Department of Food and Agriculture

County of Los Angeles, 2014. Government. [Online]. Available: <http://lacounty.gov/wps/portal/lac/government/> [2014, Mar. 17]

Deioma, K, n.d. Los Angeles travel. Los Angeles weather: Historical climate information and current conditions. [Online]. Available: <http://golosangeles.about.com/od/losangelesweather/a/LAWeather.htm> [2014, Mar. 17]

EIS 1—See U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2001

EIS 2—See U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2008

EPA—See U.S. Environmental Protection Agency

Kollman, W.S., 2003. Environmental fate of spinosad. California Department of Pesticide Regulation, Environmental Monitoring Branch. [Online]. Available: http://www.cdpr.ca.gov/docs/emon/pubs/fatememo/spinosad_fate.pdf [2013, Mar. 14]

LACo—See County of Los Angeles

LAAS—See Los Angeles County Audubon Society

LA Stormwater, n.d. City of Los Angeles Stormwater program: About us. About watersheds. [Online]. Available: <http://www.lastormwater.org/about-us/about-watersheds/> [2014, Mar. 17]

Los Angeles County Audubon Society. 2006. Field List of the Birds of Los Angeles County (mainland and offshore waters). [Online]. Available: <http://losangelesaudubon.org/images/stories/pdf/fieldlistofthebirdsoflosangelescounty.pdf> [2014, Mar. 20]

Luebehusen, E. 2014. U.S. Drought Monitor: California. March 18, 2014 (released on March 20, 2014). [Online]. Available: <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA> [2014, Mar. 21]

Malloy, B., n.d. California travel. Los Angeles weather and climate. [Online]. Available: http://gocalifornia.about.com/cs/losangeles/1/bl_la_temp.htm [2014, Mar. 17]

NAPIS—See National Agricultural Pest Information System

National Agricultural Pest Information System, n.d. Pest tracker. Mediterranean fruit fly (Medfly), *Ceratitidis capitata*. [Online]. Available: <http://pest.ceris.purdue.edu/pest.php?code=IOBMADA> [2014, Mar. 14].

National Pesticide Information Center, 2000. Methyl bromide. Technical fact sheet. [Online]. Available: <http://npic.orst.edu/factsheets/MBtech.pdf> [2014, Mar. 14]

Newhart, K., 2006. Environmental fate of malathion. California Environmental Protection Agency, Department of Pesticide Regulation, Environmental Monitoring Branch. Oct. 11, 2006. [Online]. Available: http://www.cdpr.ca.gov/docs/emon/pubs/fatememo/efate_malathion.pdf [2014, Mar 14]

NPIC—See National Pesticide Information Center

NPS—See U.S. National Park Service

UFL—See University of Florida

University of Florida, 2010. Featured Creatures. Common name: Mediterranean fruit fly. Scientific name: *Ceratitis capitata* (Wiedemann) (Insecta: Diptera: Tephritidae). [Online]. Available: http://www.entnemdept.ufl.edu/creatures/fruit/mediterranean_fruit_fly.htm#life [2014, Mar. 26]

U.S. Census Bureau, n.d.(1). State and county quick facts, Los Angeles (city), California. Last revised: Tuesday, 07-Jan-2014 10:47:59 EST. [Online]. Available: <http://quickfacts.census.gov/qfd/states/06/0644000.html> [2014, Mar. 14]

U.S. Census Bureau, n.d.(2). State and county quick facts, Los Angeles County, California. Last revised: Thursday, 27-Mar-2014 09:53:45 EST. [Online]. Available: <http://quickfacts.census.gov/qfd/states/06/06037.html> [2014, Mar. 27]

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2014. 96 hour report: Initial fruit fly outbreak information. Mediterranean fruit fly (*Ceratitis capitata*). Plant Protection and Quarantine, Sacramento, CA. March 13, 2014.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2012. Mediterranean fruit fly cooperative eradication program, Rancho Cucamonga, San Bernardino County, California, environmental assessment—August 2012. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2009. Mediterranean fruit fly cooperative eradication program, Santa Monica, Los Angeles County, California, environmental assessment—November 2009. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2008. Use of genetically engineered fruit fly and pink bollworm in APHIS plant pest control programs. Final environmental impact statement—October 2008. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2003. Spinosad bait spray applications. Nontarget risk assessment, October, 2003. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2001. Fruit fly cooperative control program, final environmental impact statement—2001. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1999. Spinosad bait spray applications. Human health risk assessment, March 1999. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998a. Human health risk assessment for fruit fly cooperative control programs. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998b. Nontarget species risk assessment for fruit fly cooperative control programs. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, n.d. Hungry pests: the threat. Mediterranean Fruit Fly. [Online]. Available: <http://www.hungrypests.com/the-threat/mediterranean-fruit-fly.php> [2014, Mar. 17]

U.S. Environmental Protection Agency, 2014. Surf your watershed. California: Los Angeles County. [Online]. Available: http://cfpub.epa.gov/surf/county.cfm?fips_code=06037 [2014, Mar. 17]

U.S. Environmental Protection Agency, 2011. California Impaired Waters and TMDL Information. [Online]. Available: http://iaspub.epa.gov/tmdl/attains_state.control?p_state=CA&p_cycle=2010&p_report_type=T [2014, Mar. 17]

U.S. Environmental Protection Agency, 2008. 4-(or 5-)Chloro-2-methylcyclo]hexane-carboxylic acid, 1, 1-dimethyl ester (112603) fact sheet. Issued: 6/01. [Online]. Available: http://www.epa.gov/opp00001/chem_search/reg_actions/registration/fs_P_C-112603_01-Jun-01.pdf [2014, Mar. 14]

U.S. National Park Service. 2013. National NAGPRA Online Databases. [Online]. Available: <http://www.nps.gov/nagpra/onlinedb/index.htm> [2014, Mar. 19]

USCB—See U.S. Census Bureau.

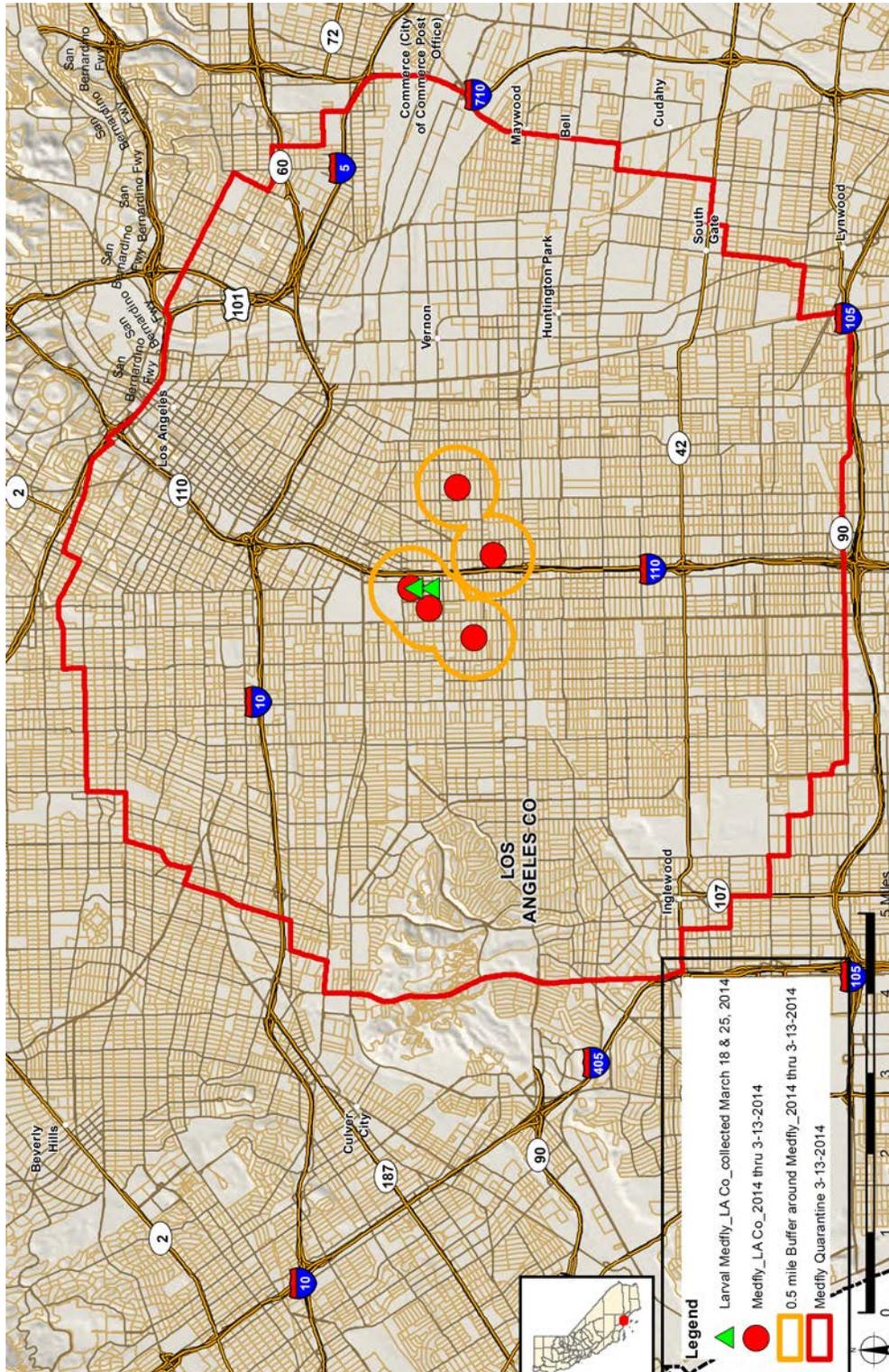
USDA—See U.S. Department of Agriculture

Water Education Foundation, 2006. Where does my water come from? Los Angeles Region. Anaheim. [Online]. Available: <http://www.water-ed.org/watersources/community.asp?rid=9&cid=562> [2014, Mar. 14]

WEF—See Water Education Foundation

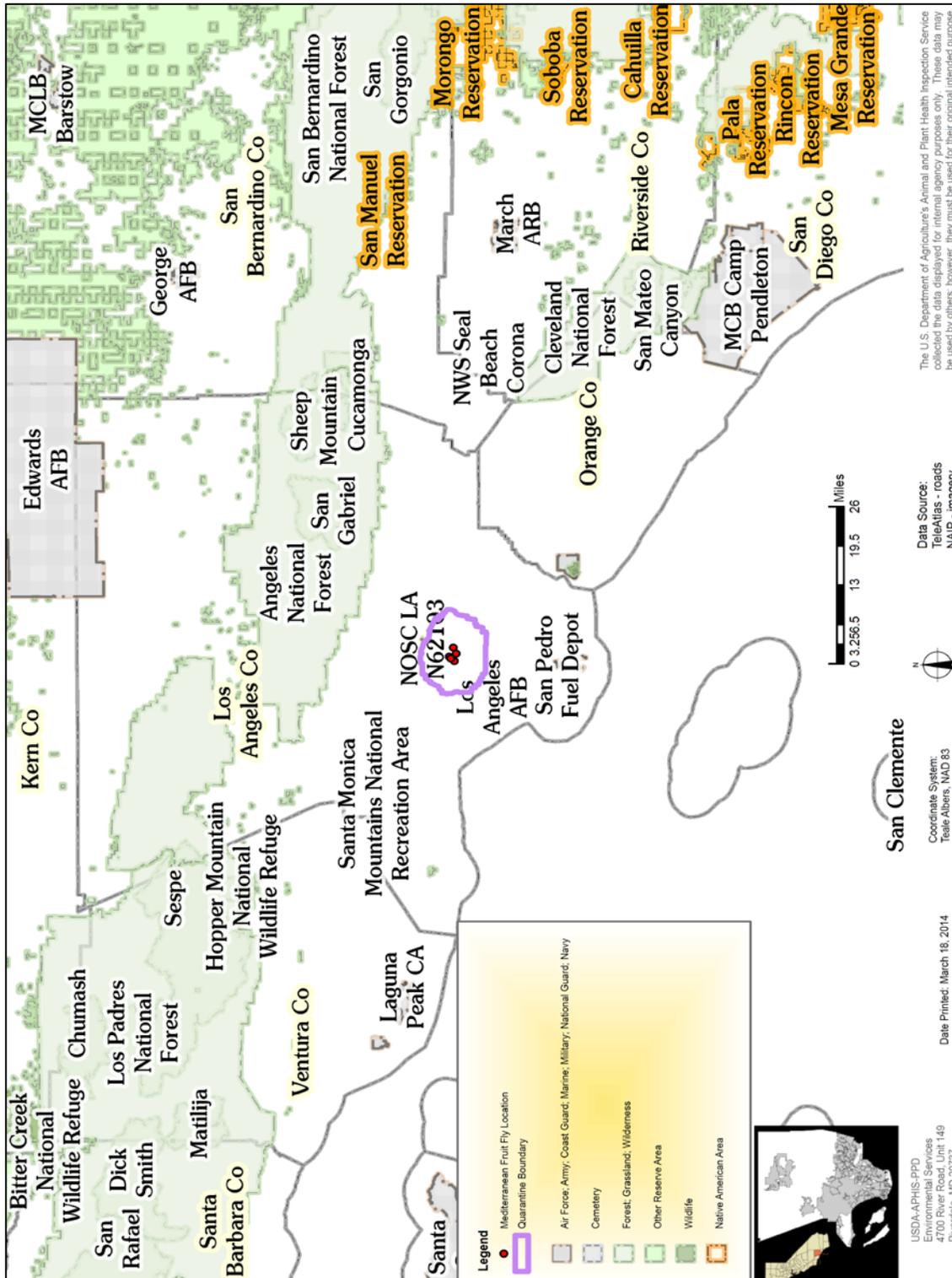
WQCB—See California Regional Water Quality Control Board, Los Angeles Region

Appendix A. Los Angeles Medfly Program Area— March 26, 2014.



Source: USDA APHIS PPQ

Appendix B. Los Angeles Medfly Program and Surrounding Area—March 2014



Source: USDA APHIS PPD