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Mediterranean Fruit Fly Cooperative Eradication Program

Los Angeles County, California

Environmental Assessment
November 2016

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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, 2016). Although Medfly has been periodically introduced into 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 the widespread destruction of crops such as apricot, apple, grapefruit, nectarine, orange, peach, and cherry. Commercial crops, as well as dooryard production of host fruits, would suffer if Medfly populations became established. Fruit infested 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 November 14, 2016, an unmated fertile female Medfly was collected from a trap on a citrus host in the Arleta residential area of Los Angeles County, California (CDFA, 2016a). Delimitation and larval surveys outward from the detection site were initiated. On November 18, two unmated fertile female Medflies were collected from traps on guava trees in the neighboring communities of North Hollywood and Panorama City (CDFA, 2016b and 2016c). On November 19, two mated female Medflies were collected from traps on host plants in Arleta and another Los Angeles neighborhood (CDFA, 2016d and 2016e). The five detections were all confirmed as wild Medfly, triggering participation by the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) in a quarantine and control program for this outbreak.

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 noninfested 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.

Working cooperatively with States and territories, APHIS identifies and eradicates Medfly infestations. APHIS has cooperated with the California, Florida, Puerto Rico, and Texas Departments of Agriculture on fruit fly eradication programs since 1984. To date, every fruit fly population targeted by APHIS' cooperative eradication programs was successfully eradicated.

The State of California initiates *Ceratitis* spp. delimitation and eradication programs in locations where the types and number of detections are not yet triggering quarantine regulatory actions. The goal of these delimitation and eradication programs is to eliminate fruit fly infestations before reaching a quarantine threshold and imposing regulatory quarantines. Monitoring for Medfly continues throughout all susceptible counties of California.

An interstate quarantine of Medfly-host species was implemented in July 2015 and removed in October 2015 after eradication of a Medfly infestation in San Diego County (APHIS, 2015a). The November 2016 outbreak is the first Medfly infestation of quarantine significance in California since that time.

Many Medfly host-plant species are grown in Los Angeles County and adjacent regions, which increases the potential environmental impact of the current infestations. The greater Los Angeles metropolitan area is highly developed. (See figure 1 for a map of Los Angeles neighborhoods.)

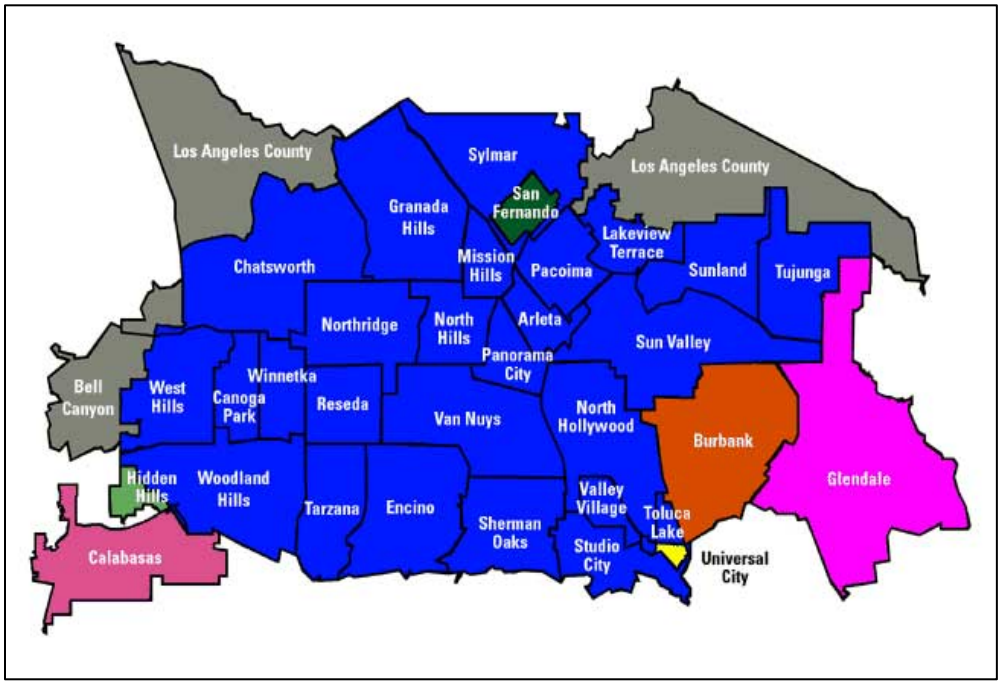


Figure 1. The San Fernando Valley. Areas in blue are neighborhoods within the jurisdiction of the city of Los Angeles.
Image source: http://www.gerrisisko.com/images/map.jpg

All five Medflies were found in hosts on residential property. Commercial production of avocado, citrus and white grapes begins 22-25 miles from Arleta and Panorama City; there are more than 100 acres of citrus and avocado to the north and 12-15 acres of white grapes to the northwest (APHIS, 2016). There are commercial plant nurseries and organic farms in Arleta, North Hollywood, and neighboring communities (pers. comm., Smith to Shalom). The area proposed for the cooperative program is referred to in this environmental assessment (EA) as the Arleta program area.[1] (To view the proposed program area see the map in appendix A.)

APHIS and its cooperating partners have discussed and comprehensively analyzed alternatives for Medfly eradication 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.

This EA analyzes the environmental consequences of alternatives considered for Medfly eradication, and analyzes, from a site-specific perspective, environmental issues relevant to this particular program. The eradication measures being considered for this program were discussed and comprehensively analyzed within APHIS' fruit fly chemical risk assessments (APHIS, 2014, 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 Action, (B) Quarantine and Commodity Certification, and (C) the preferred alternative, Eradication Using an Integrated Pest Management (IPM) Approach. Component techniques of alternative C include the use of regulatory controls, high density trapping, host larval survey, chemical control, and biological control (sterile insect technique (SIT)) to facilitate

[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.

the timely elimination of the current Medfly infestation. These alternatives and their component techniques were discussed and comprehensively analyzed 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 Medfly or restrict expansion of the Medfly population from the infested area. In the absence of a Federal effort, quarantine and control would be left to State and local governments, 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 agricultural 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 to control Medfly, please use the following link: CDFA Medfly project information.)

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) § 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 regulatory checks. The quarantine actions of this alternative are designed to reduce Medfly movement outside treated areas, and reduce human-mediated transport 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 (MB), and bait spray with a mixture of protein hydrolysate (a food bait) and spinosad. (Refer to EIS1 (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 Integrated Pest Management Approach (Preferred Alternative)

APHIS' preferred alternative for the Arleta Medfly program is eradication using an IPM approach. This alternative combines quarantine and commodity certification with eradication treatments, and is designed to be biologically effective while minimizing impacts to the environment, public intrusiveness, and program operating costs (CDFA, 2016f). Successful eradication of a Medfly infestation in San Diego County, using a similar IPM strategy, was declared in October 2015 (APHIS, 2015a).

For many species of exotic fruit flies, effective nonchemical control or eradication techniques do not exist (APHIS, 2001). CDFA (2016f) has determined there are no cultural options available to eradicate Medfly that allow CDFA to meet its statutory obligations. APHIS concurs with this assessment. Eradication efforts may therefore include any or all of the following:

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

Adult Medflies can fly and be carried for long distances by the wind and by people carrying infested fruits (UFL, 2010), making it possible for host-plant growing areas outside an eradication zone to become infested. The program area for the Medfly infestation includes those portions of Los Angeles County centered on Medfly detection sites (see map in appendix A). The current boundary may be expanded to include other properties if additional adult flies or life stages are found.

APHIS' cooperative programs to eradicate Medfly infestations in California use established procedures and treatments (APHIS, 2001, 2004 and 2015b; CDFA, 2016f) designed with the species' life stages in mind:

1. Delimitation

Several types of traps—including Jackson sticky trimedlure traps, ChamP™ sticky trimedlure traps, and Multilure® traps using a 3-component lure-formulation—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. Fruit of host plants will be sampled for the presence of eggs and larvae in a 200-meter radius around each detection site (APHIS, 2016).

2. Treatment

Should evidence of a breeding Medfly population be confirmed, a targeted, ground-based foliar bait treatment will be applied. 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, a food bait (APHIS, 2016). Treatments are repeated every 1 to 2 weeks for one life cycle of the fly (typically 2 to 3 months, dependent on temperature).

Protein hydrolysate is a common attractant used in fruit fly treatments, increasing the efficacy of chemical applications, and reducing the area of pesticide treatments needed for control (Prokopy et al., 1992). 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 pesticide that is mixed with the attractant.

Evidence of a breeding population (immature life stages, mated female Medfly, or multiple adult captures within a certain distance and time-frame) will result in removal of host fruit from each detection site and from all properties within a 100-meter radius of each detection site (APHIS, 2016).

SIT will be used to limit expansion of 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. The release area currently proposed covers a 3.5-mile radius around each find site. Releases will be repeated twice a week to achieve a minimum weekly release rate of 250,000 sterile Medflies per square mile (APHIS, 2016), and will continue for at least two life cycles beyond the last Medfly detection date (typically 4 to 6 months, dependant on temperature).

A quarantine boundary will be established to ensure any host material that leaves the program area is free of Medfly. Host material may be treated in enclosed areas or containers by cold treatment, vapor heat treatment, irradiation, or fumigation with MB. Should the Medfly 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.

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 the fruit receives APHIS-approved MB treatment in the field or at the packing shed. Growers of host fruits may also treat their production areas using approved program treatments (field and/or premise treatment) and, under the compliance agreement, have crops certified for movement to packing sheds.

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. Residents whose property will be treated or whose fruit will be removed are to be notified at least 48 hours in advance. 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 Medfly host material will be notified of the Medfly quarantine location and treatment schedule.

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

III. Potential Environmental Consequences

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

A. No Action

Lack of Federal action would place the burden of eradication on the State of California. It is reasonable to expect Medfly 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 valuable U.S. export markets.

B. Quarantine and Commodity Certification

The quarantine actions of this alternative are designed to reduce the human-mediated movement of Medfly by preventing the transportation of host-plant materials beyond the quarantine boundary. A resident Medfly population would be expected to remain within the quarantine boundary. 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 ongoing governmental presence in the marketplace. This situation could create inspection jobs, however, would restrict trade until the produce was inspected and certified for sale. Host plants would likely cease being grown for domestic use as landowners shift to non-Medfly host plants.

C. Preferred Alternative

This section considers to what extent implementation of the preferred alternative might affect the human environment. It begins with a brief description of the physical aspects of the region and its residents, both within and near the proposed program area The preferred alternative, eradication using an IPM approach, may employ any or a combination of the following measures:

- no action,
- regulatory quarantine treatment and movement control of host materials and regulated articles,
- host survey for evidence of breeding Medflies,
- host removal,
- eradication chemical applications (foliar bait spray),
- mass trapping using pheromone lures or food bait as an attractant, and
- SIT.

Pheromone lures present little or no risk to human health or to the general environment based on their low toxicity in animal testing, high target specificity, and low exposure to humans and the environment (EPA, 2011; Reilly, 2003). Review of the treatment protocols by APHIS indicates the chemical formulations used as pheromone lures in Medfly

program traps are unlikely to result in adverse environmental or human health risks (APHIS, 2014, 2003, 1999, 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

Los Angeles County occupies over 4,050 square miles in California, and has an estimated population of more than 10 million; the estimated population of the city of Los Angeles is over 3,950,000 (USCB, 2016a). About 1.5 million people live in the San Fernando Valley—the most densely populated area in the valley is Panorama City (18,028 residents per square mile). Arleta estimates 10,034 people per square mile, about average for both the city of Los Angeles and the county (LA Times, 2016).

The November 2016 Medfly infestation is located in the San Fernando Valley, within the jurisdiction of the city of Los Angeles (see figure 1). The valley lies northwest of downtown Los Angeles and is bounded by mountain ranges: the San Gabriel (north and northeast), Santa Susana (north), the Santa Monica (south), and the Simi Hills (west). Originally an agricultural area, San Fernando Valley occupies 260 square miles; its natural habitat has been urbanized. Primary drainage is provided by the Los Angeles River. Several water-storage reservoirs, the Pacoima Spreading Grounds and other groundwater recharge basins, and a large flood-control dam and reservoir are located in the valley (Encyclopædia Britannica, 2008; LA County, 2016).

Weather across the San Fernando Valley is affected by the surrounding mountains. The climate is generally that of a desert region – summer temperatures can be over 100 °F, and winter temperatures can be 40 °F or lower. Although humidity is usually low, heavy rainstorms can occur (typically in January and February) that result in significant flooding of the area. Because periods of extreme heat and dryness can occur from June through October, valley residents often experience restricted water and electricity supplies. Smog is continually present, trapped in the valley basin until cleared somewhat by a rain storm or the Santa Ana winds (cityLogica, 2016).

Communities in the eastern part of San Fernando Valley are the most densely populated and contain a great deal of commerce. Important industries in the valley include film and television production, tourism, and entertainment. Current agricultural production primarily consists of small growers who sell in local farmers markets (cityLogica, 2016).

Land use in the immediate program area is primarily suburban residential and commercial. Schools, municipal parks, biking and hiking trails, golf courses, and other public and private recreational facilities also occur

within or near the program area. Medfly-host vegetation in the program area occurs on both private and public property. Major transportation routes passing through the program area include Interstates 5 and 405 and California Highways 101, 118, and 170. Although the current infestation is in a highly developed location, there are numerous potentially sensitive land sites located within 15 miles of the Medfly detections. (For more information see table 1.)

Table 1. Distance from Center of Detections to Certain Land Sites.*

Designated Land Use	Distance Rounded Off to Nearest Tenth of a Mile

City, State, and Federal Lands	• 3 parks within proposed treatment area
	  o Branford Park
	  o Panorama Recreation Center
	  o Slavin Park
	• Encino Reservoir State Park, 8.5
	• Griffith State Park, 8.4
	• La Tuna Canyon Park, 4.7
	• Los Angles National Forest, 4.8
	• Malibu Creek State Park, 21.0
	• Santa Clara Woodlands State Park, 7.5
	• Topanga State Park, 10.0

Crops	• Within proposed treatment area: over 2 acres of alfalfa, other hay/non-alfalfa, pistachios • Within the quarantine: over 3 acres of barley, oats, alfalfa, other hay/non-alfalfa, pistachios
Nearest Airports	• Burbank/Glendale/Pasadena, 4.3 • Los Angeles International Airport, 22.0 • Van Nuys, 3.6
Nearest Historic Sites	• 2 sites (not federally registered) within proposed treatment area • 6 registered sites within the quarantine
Nearest International Seaport	• Port of Los Angeles, 41.0 • Port of Long Beach, 41.0
Nearest Native American Reservation	• Non-federally recognized Indian groups ceded lands in the proposed treatment area and within the quarantine • San Manuel Reservation, 81.0
Organic Production, Nurseries and Farmers Markets	• 9 federally certified organic operations within quarantine (7 within proposed treatment area) • 5 commercial nurseries within quarantine (4 within proposed treatment area) • 7 certified farmers markets within quarantine (4 within proposed treatment area)
Schools and Academic Institutions	• 45 schools within proposed treatment area • 94 schools, <5.0

* See appendix B for data sources

b. Water Resources

The State of California continues to experience extreme drought that is broken, to a limited extent, by storms, bearing unusually heavy rainfall. Severe drought conditions since 2012 led to unusual surface and ground-water loss in California. Both short-term (i.e., less than 6 months' duration) and long-term adverse impacts are predicted for California's agriculture, ecology, and hydrology (Heim, 2016). (See figure 2 for a map of drought intensity.)

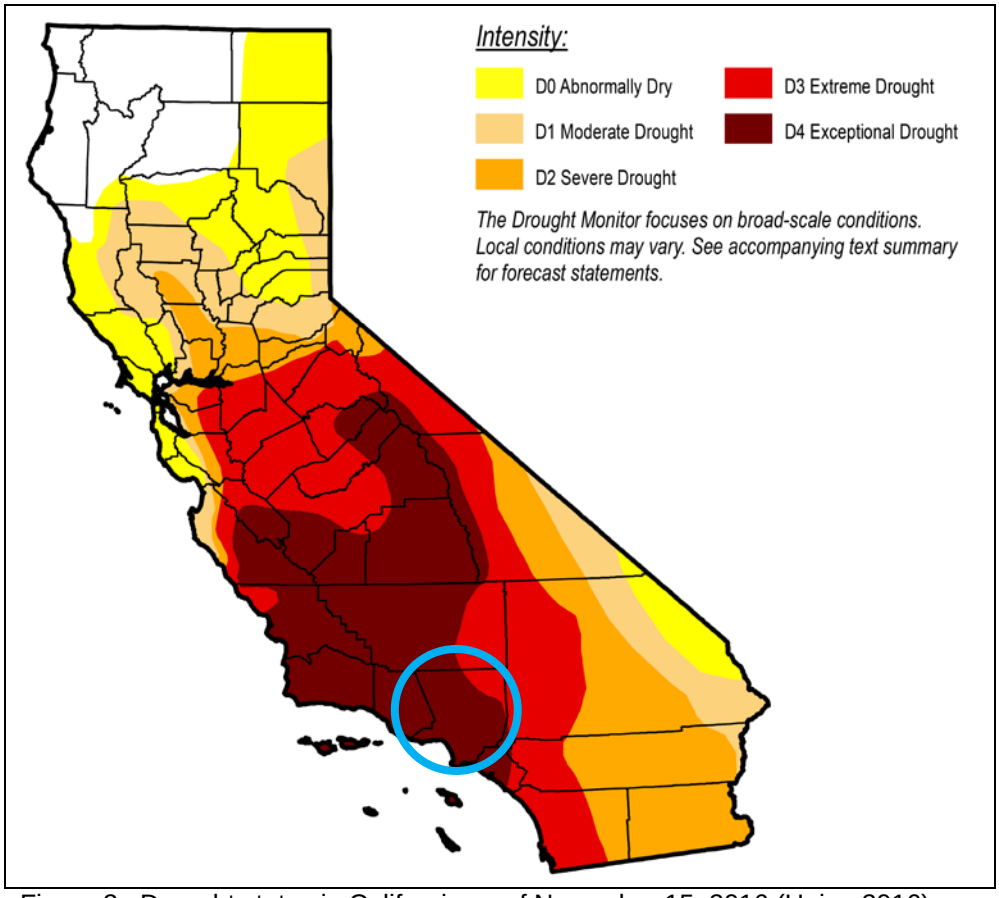


Figure 2. Drought status in California as of November 15, 2016 (Heim, 2016). Mainland Los Angeles County is centered within the blue circle.

One of California's earliest major water projects, the Los Angeles Aqueduct, supplies water and electricity to about 3.8 million residents in the city of Los Angeles. Serving most of the southern California region, the Metropolitan Water District imports water from the Colorado River and the State Water Project, and supplies it to member agencies and cities, including Los Angeles. Many cities also rely on groundwater. Groundwater fills spaces between sand, gravel, silt, and clay in water-bearing formations known as aquifers. About 30 percent of California's

total annual water supply comes from groundwater in normal years, and up to 60 percent in drought years (WEF, 2016).

Water located beneath the program area or that drains off it may enter watersheds in the program area (see table 2). About 12 percent of the Los Angeles municipal water supply is from groundwater. The Pacoima Spreading Grounds is a major water conservation facility that recharges the San Fernando Groundwater Basin; the facility covers 169 acres and is located about 2 miles from the November 2016 Medfly detections (LA County, 2016). The San Fernando Valley Groundwater Basin was adjudicated in 1979 and includes the water-bearing sediments beneath the San Fernando Valley, Tujunga Valley, Browns Canyon, and the alluvial areas surrounding the Verdugo Mountains near La Crescenta and Eagle Rock. The basin is bounded on the north and northwest by the Santa Susana Mountains, on the north and northeast by the San Gabriel Mountains, on the east by the San Rafael Hills, on the south by the Santa Monica Mountains and Chalk Hills, and on the west by the Simi Hills. The valley is drained by the Los Angeles River and its tributaries. Precipitation in the San Fernando Valley ranges from 15 to 23 inches per year and averages about 17 inches (CA DWR, 2004). APHIS Medfly program treatments are designed to prevent contamination and degradation of water quality in program area watersheds.

Table 2. Distance from Center of Detections to Certain Water Resources.*

Type of Resource	Distance Rounded Off to Nearest Tenth of a Mile
Water Bodies within 6 miles	• 3 within proposed treatment area o Central Branch Tujunga Wash o Pacoima Wash o Unnamed holding pond • 7 within quarantine o Balboa Lake o East Canyon Channel o Hansen Dam Flood Control Basin o Los Angeles River o Sepulveda Dam o Tujunga Wash o Van Norman Lakes
Impaired Waters within 15 miles	• 2 segments within the proposed treatment area • 5 segments within the quarantine

* See appendix B for data sources.

California has implemented water conservation programs and continues to seek additional ways to reduce water use. The Governor declared a drought State of Emergency in January 2014. On April 1, 2015, the State Water Resource Control Board (SWB) was ordered to implement mandatory water reductions in cities and towns across California to reduce potable urban water usage by 25 percent statewide. Cities with higher per

capita use are facing mandatory water use reductions up to 36 percent based on their usage in 2013. The SWB required these areas to achieve proportionally greater reductions than those with lower use, to help reduce statewide water consumption by 25 percent (LA County, 2015).

In 1985, California enacted legislation to protect the potability of its groundwater; potential contaminants are identified and pesticide use restrictions are implemented for vulnerable areas (State of California, 2013). Ongoing surveys of California's waters continue to show substantial pollutant and toxicity levels; the percentage increases, however, may reflect more thorough site assessment rather than increasing pesticide discharge and runoff (EPA, 2015).

The Medfly 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 potential program use of chemical pesticides, including spinosad protein bait and methyl bromide (as a fumigant). Factors that influence the human health risk are associated with pesticide use and include pesticide toxicity and exposure to humans. These factors are influenced by the use pattern and environmental fate for a particular pesticide.

Spinosad is toxic to specific invertebrate species but has low toxicity to humans and other mammals (APHIS, 2014). Limited data exists regarding the toxicity of the protein hydrolysate bait used in the spinosad formulation; however, the available data suggests low acute toxicity to human health.

Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. The Medfly eradication program will employ ground-based targeted applications of spinosad with protein bait. Workers who mix, load and apply pesticides and the general public who live or visit the Medfly eradication program area are the potentially exposed human populations. Exposure for program workers is not expected based on the proper use of personal protective equipment or engineering controls.

Exposure to the general public is not expected based on the targeted foliar applications and the program mitigation measures. 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. Residential neighborhoods and other areas of public traffic within the Medfly eradication program receive only targeted

foliar applications. The mitigation measures 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 contacted directly or 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- to14-day intervals for one life cycle of the fly (typically 2 to 3 months, sometimes longer dependent on temperature) (CDFA, 2016f). The potential for exposure to the general public after pesticide application is low because spinosad is not persistent in the environment with a half-life of 2.0 to 11.7 days on plant surfaces. An additional summary of the environmental fate of the pesticides is discussed in the Environmental Quality section of this document.

If the spinosad protein 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. The use of protein hydrolysate as an attractant in the Medfly program is also expected to present a low risk to human health. The attractant has low toxicity and its ground-based, targeted method of application results in a low probability of exposure and risk to workers and the general public.

Should treatment by MB 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 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, 2014, 1999 and 1998a) for more detailed information relative to human health risk.).

APHIS recognizes a small portion of the population may have greater than usual sensitivity to certain chemicals, and 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).

Trap placement and chemical applications may be rescheduled if strong winds or rainfall is forecast for the program area. Site inspections will continue to ensure 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 because the potential pesticide toxicity is reduced by dilution during the storm's water and air movement.

Of the three alternatives considered, a well-coordinated eradication program using IPM technologies results in the least use of chemical pesticides and minimizes their potential to adversely affect human health. The no action alternative is not expected to eliminate Medfly as readily or as effectively as the preferred 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 (16 U.S.C. §§ 470 et seq.), requires Federal agencies to consider the impact of their proposed actions on properties included in, or eligible for inclusion in, the National Register of Historic Places (36 CFR §§ 63 and 800). APHIS identified numerous places listed on the National Register within the quarantine areas. APHIS actions will not disturb the ground or the facility, the deployed chemicals do not affect building materials, and the deployed chemicals rapidly degrade in the environment. For these reasons, APHIS activities considered in this assessment are not likely to affect historic properties. APHIS may hand-pick fruit from surrounding landscape plants, and place bait stations outside of the property of the historic site whenever possible.

APHIS is consulting with the California State Historic Preservation Office (SHPO). The Medfly project area under consideration includes one county. Currently, there are more than 500 locations on the National Register of Historic Places in Los Angeles County (State of California, 2016), none of which are located within the treatment area. There are six sites within the quarantine area, including branches of the Los Angeles public library system, residences converted to museums, and an aviation shrine.

In general, APHIS' fruit fly eradication programs are compatible with the preservation of historic sites because they discreetly integrate control activities into the site: activities are designed not disturb the ground, and the treatments do not adversely affect human-made structures. APHIS restricts program treatments and activities to an as-needed basis, and also can modify normal program activities at historically significant locations to reduce pesticide release, if necessary. APHIS will not conduct aerial chemical applications, and spraying will be ground-based, directly targeting foliage. This may include hand-spraying with a backpack sprayer. Surveillance trapping and fruit stripping by hand may occur. For all these reasons, the proposed action is not expected to adversely affect historic properties. If

APHIS discovers any archaeological resources, it will notify the appropriate individuals.

Federal agencies identify and address the 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*. APHIS engages locally impacted people in collaborative decisions on trap placement whenever possible, and considers 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.

Using 2016 U.S. Census Bureau estimates, the population in Los Angeles County reporting their race as Hispanic was about 48 percent, Asian as 15 percent, and Black as 9 percent. Fewer than 19 percent are reported as living in poverty (USCB, 2016b). Using data from 2010–2014 for an area 5 miles in radius from the location of the initial Medfly detection, the population is approximately 61 percent Hispanic, 8 percent Asian, and 4 percent Black. In addition, while 70 percent of the population in this area does not speak English at home, three-quarters of this population segment reported they spoke English "very well" or "well" (USCB, 2016c). Approximately 77 percent of the population graduated high school and/or completed some college studies, and more than one-third of the households reported income exceeding $75,000 each year (USCB, 2016c). The educational level and English fluency associated with this area does not suggest providing advance notice of program activities, and potential exposure hazards in a variety of languages will reach substantially more members of the local population.

Federal agencies comply with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. The preferred alternative does not pose any disproportionate adverse effects to children because maintenance of traps and any pesticide applications would not occur when children are present in the immediate area. The intermittent presence of children at shelters, playgrounds, parks and picnic areas, religious centers, public/private campgrounds and trailer parks, athletic fields, bus depots, and outdoor community facilities means they are likely to be at locations where bait traps are in use; however, the placement of these traps is likely to be far above their reach. There are approximately 137 schools within the quarantine area and, at present, 43 are within the 2.5-mile radius treatment zone. APHIS will maintain traps and apply any pesticide applications only when children are not present in the immediate area. Where possible, APHIS will not apply baits on school property. When pesticide applications are essential, APHIS would use either a bait trap or backpack sprayer. Exposure of children to applied products is expected to be negligible based on the program's application methods and the product formulations. The proposed program is not expected to pose any highly disproportionate adverse effects to children,

minority, and/or low-income populations because (1) these individuals are unlikely to be present when APHIS applies treatments or maintains bait traps, and (2) exposure to applied pesticides is likely to be negligible.

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, calls for agency communication and collaboration with tribal officials when proposed Federal actions have potential tribal implications. The Archaeological Resources Protection Act of 1979 (16 U.S.C. §§ 470aa-mm), secures the protection of archaeological resources and sites on public and tribal lands. Using the Native American Graves Protection and Repatriation Act Online Databases (NPS, 2016; 25 U.S.C. §§ 3001 et seq.), APHIS finds there are no federally recognized Indian reservations in the quarantine area, and there are not any federally registered Native American tribes residing in Los Angeles County (NPS, 2016). The nearest tribal land in the region is the San Manuel Reservation located 81 miles from the treatment area. Ceded tribal lands near the treatment and quarantine zones are not from federally recognized tribes. The proposed action is designed not to disturb the ground. For all of the reasons described above, program activities are unlikely to affect Native Americans.

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 local employment, reduced nutritional options, loss of market share, compromised mental and physical health, loss of property, and so on. These indirect impacts may occur to a lesser extent under the quarantine and commodity certification alternative. APHIS does not anticipate these types of adverse effects as a result of carrying out the preferred alternative's surveillance activities, trapping, SIT, and program ground-based chemical applications.

4. Nontarget Species

The principal concerns for nontarget species, including threatened and endangered species, relate to the program use of pesticides. Paralleling human health risk, the risk to nontarget species is related to exposure of the pesticide to nontarget species, toxicity to the nontarget species, and the environmental fate. 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. In general, a well-coordinated Medfly 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 Medfly, and 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 EIS1 (APHIS, 2001) and the

associated risk assessments (APHIS, 2014, 2003 and 1998b) for more information on risks to all classes of nontarget species.)

Current eradication activities in Los Angeles County will be limited to ground-based foliar applications of an organic formulation of the pesticide spinosad combined with protein hydrolysate bait to host plants within a 200-meter radius of the Medfly find site, and the use of SIT to control invasive Medfly populations. Regulatory chemical treatments may include fumigation with methyl bromide.

Protein hydrolysate is a common attractant used in fruit fly treatments, increasing the efficacy of chemical applications and reducing the area of pesticide treatments needed for control (Prokopy et al., 1992). Medflies are attracted to the protein hydrolysate where they then receive a lethal dose of the pesticide spinosad that is mixed with the attractant. Protein hydrolysate alone is expected to have minimal impacts to environmental quality and nontarget species because of its low toxicity.

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 species from the use of spinosad bait are anticipated to be negligible because the proposed use pattern (targeted, hand application of the bait) results in a low potential for exposure to most taxa. The bait applications attract only a small number of invertebrate species other than Medfly. The spinosad treatment targets Medfly life stages where detected in a manner that minimizes potential exposure and associated risks to nontarget species.

The release of sterile Medflies over the eradication zone will occur after the spinosad treatment has lowered the invasive Medfly population, and thus reduced the population of sexually mature female Medflies. SIT is expected to have no adverse effect on nontarget species.

The sealed methods for methyl bromide application are designed to protect nontarget 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.

Some State and municipal parks are located near treatment sites, but no wildlife refuges, national parks, or other conservation areas are present. APHIS' Medfly programs are designed to prevent the introduction of program chemicals into nontargeted areas. No program chemical applications will be permitted at protected sites or within refuges without coordination with refuge managers. Aerial SIT and surveillance trapping will continue, and fruit stripping by hand will be undertaken if Medfly

detections occur at such locations. Pesticide bait applications will only be used if applications can be made without resulting in adverse impacts to protected species and habitats within the refuges.

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) which 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 (LACAS, 2006). Some of these species are of conservation concern, such as Allen's hummingbird (*Selasphorus sasin*), Bell's vireo (*Vireo bellii*), Brewer's sparrow (*Spizella breweri*), burrowing owl (*Athene cunicularia*), cactus wren (*Campylorhynchus brunneicapillus*), California spotted owl (*Strix occidentalis occidentalis*), Costa's hummingbird (*Calypte costae*), fox sparrow (*Passerella iliaca*), green-tailed towhee (*Pipilo chlorurus*), lesser yellowlegs (*Tringa flavipes*), Lewis's woodpecker (*Melanerpes lewis*), loggerhead shrike (*Lanius ludovicianus*), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), Nuttall's woodpecker (*Picoides nuttallii*), oak titmouse (*Baeolophus inornatus*), olive-sided flycatcher (*Contopus cooperi*), peregrine falcon (*Falco peregrinus*), red-crowned parrot (*Amazona viridigenalis*), rufous-crowned sparrow (*Aimophila ruficeps*), short-billed dowitcher (*Limnodromus griseus*), short-eared owl (*Asio flammeus*), snowy plover (*Charadrius alexandrinus*), tricolored blackbird (*Agelaius tricolor*), western grebe (*Aechmophorus occidentalis*), Williamson's sapsucker (*Sphyrapicus thyroideus*), and yellow warbler (*Dendroica petechia* ssp. *brewsteri*) (FWS, 2016).

APHIS evaluated the proposed Medfly program in terms of potential

impact on migratory avian species. Given the methods of application, 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 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 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. No federally listed species or designated critical habitat are present in the treatment area. Therefore, the proposed program will have no effect on them.

Should the program area expand or further outbreaks be detected that are not considered herein, APHIS, in cooperation with CDFA, 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, 2014, 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 spinosad and MB are outlined below. (Refer to EIS1 and EIS2 (APHIS, 2001 and 2008) and the risk assessments (APHIS, 2014, 2003, 1999, 1998a and 1998b) for a more detailed consideration of program pesticides' environmental fates.)

Attractant ingredients, such as pheromone lures and protein hydrolysate food bait, have minimal effects on environmental quality, based on EPA-approved use patterns and the rapid degradation of the ingredients. Use of these attractants in Medfly program treatments is not expected to result in impacts to environmental quality beyond those described for the below chemicals (EPA, 2011; Reilly, 2003; Prokopy et al., 1992).

- **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, 2014; Kollman, 2003).

- **Methyl bromide** (MB) fumigation 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 day. The degradation half-life of MB in soil ranges from 31 to 55 days. MB has a low affinity to bind to soils, however, is not considered a major contaminant of groundwater (NPIC, 2000). The small quantities used to treat for Medfly 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 is indicated in close proximity to a body of water where pesticides might be directly discharged into the water, CDFA will analyze the environmental setting, and establish and follow site-specific best management practices. The prescribed method of spray application directly to host plants is designed to minimize drift and runoff. Mitigation measures will be applied to protect marine and freshwater resources.

Personnel will maintain a minimum distance of 98 feet (30 meters) from surface water. Personnel applying pesticides will adhere to label directions, State and Federal laws, and recommendations of the environmental compliance staff associated with the program. Water body contact is not anticipated due to the targeted application measures and the environmental fate of the pesticides used in *Ceratitis* spp. cooperative eradication programs.

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 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 Medfly infestations in the United States. Federal quarantine restrictions and commodity certification requirements would place the burden of control efforts and expense on producers already engaged in complying with other quarantine and commodity certification requirements. Either of these alternatives may increase the time it takes for commodities to reach their intended markets, or may prevent them from reaching consumers at all, which may contribute to consumer shortages and negative public perception of the affected industry.

APHIS considered implementation of the preferred alternative in the context of, and in conjunction with, other pest insect eradication and quarantine projects in the Arleta program area (such as light brown apple moth, glassy-winged sharpshooter, and other exotic fruit fly eradication efforts). These programs use pesticides with different chemistries. They target different pests, and are applied at different times. The combination of these different pesticide chemistries, targets for application, and

application timings suggest limited interacting or multiple exposures that are not likely to create significant cumulative impacts in the human environment.

Current and future in-State Medfly programs could potentially merge into one larger program area. When Medfly eradication programs are combined with trapping and eradication actions across California counties, APHIS expects a beneficial cumulative impact on the environment from reduced Medfly populations causing damage to fruit combined with overall fewer chemical treatments. Trapping and surveys for Medfly continue under the California fruit fly detection and monitoring program, and sterile Medflies continue to be released over high-risk regions as a preventive measure (CDFA, 2016g).

At present, no Medfly eradication zones overlap one another, and none overlaps the proposed Arleta treatment area. Use of program pesticides in a Medfly program that overlaps with another *Ceratitis* spp. program are monitored and adjusted, where necessary, to minimize environmental impacts. Due to the passage of time and the prevailing weather conditions in southern California during 2016, no chemical residues are believed to remain from previous Medfly programs that could result in additive or synergistic chemical effects with previous program chemical applications.

No significant environmental impacts are expected to result from proper implementation of this Medfly eradication and control program. The differences in pesticide chemistries, targets for application, affected species and resources, and application timing between the Medfly 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 control programs (CDFA, 2016h)—

- Asian citrus psyllid in 25 counties, including Los Angeles County
- glassy-winged sharpshooter in 12 counties, 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 the European grapevine moth (APHIS, 2014). Implementation of a Medfly eradication program could lead to an increase in spinosad use, and the possible overlap of APHIS and non-APHIS program treatments. The Medfly treatment schedule will be adjusted in locations where another CDFA or APHIS program may have scheduled similar treatments to avoid additive chemical impacts.

Additional programs in place at the time of preparation of this EA which may employ spinosad treatments (CDFA, 2016h) and could combine with Medfly spinosad treatments to have an additive impact have been designed to target the following pests—

- Peach, Oriental and West Indian fruit fly in California, including Los Angeles County
- light brown apple moth in portions of many California counties, including Los Angeles County.

It is uncertain how pesticides may be used by private entities in the Medfly program area. In terms of Federal and California State program activity, 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 to prevent nontarget exposure until pesticide residues are degraded.

APHIS determined 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 Medfly cooperative 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, 2014, 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, Suite 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

V. References Cited

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

CA DWR, 2004. California's Groundwater Bulletin 118. South Coast Hydrologic Region. San Fernando Valley Groundwater Basin. Updated by California Department of Water Resources 2/27/04. 5 pp.

California Department of Food and Agriculture, 2016a. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06617759. Date of collection: November 14, 2016.

California Department of Food and Agriculture, 2016b. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06618827. Date of collection: November 18, 2016.

California Department of Food and Agriculture, 2016c. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06618828. Date of collection: November 18, 2016.

California Department of Food and Agriculture, 2016d. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06618115. Date of collection: November 19, 2016.

California Department of Food and Agriculture, 2016e. Plant Health and Pest Prevention Services. Pest and damage record. PDR Number SA0P06618116. Date of collection: November 19, 2016.

California Department of Food and Agriculture, 2016f. Official Notice for the Communities of Arleta, North Hollywood, Panorama City and the City of Los Angeles. Notice of Treatment for the Mediterranean Fruit Fly. Signed by Karen Ross on November 22, 2016. 16 pp.

California Department of Food and Agriculture, 2016g. Mediterranean Fruit Fly Preventive Release Program. [Online]. Available: http://www.cdfa.ca.gov/plant/PDEP/prpinfo/index.html [2016, Nov. 23].

California Department of Food and Agriculture, 2016h. Pest exclusion: Interior program. Quarantines in California. [Online]. Available: http://www.cdfa.ca.gov/plant/pe/InteriorExclusion/quarantine.html [2016, Nov. 23].

CDFA—See California Department of Food and Agriculture

cityLogica, 2016. San Fernando Valley Guide. [Online]. Available: http://sanfernandoguide.com/ [2016, Nov. 22].

EIS1—See U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2001

EIS2—See U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2008

Encyclopædia Britannica, 2008. San Fernando Valley. [Online]. Available: https://www.britannica.com/place/San-Fernando-Valley [2016, Nov. 22].

EPA—See U.S. Environmental Protection Agency

FWS—See U.S. Department of the Interior, Fish and Wildlife Service

Heim, R., 2016. U.S. Drought Monitor. November 15, 2016 (Released Thursday, Nov. 17, 2016). Valid 7 a.m. EST. [Online]. Available: http://droughtmonitor.unl.edu/ [2016, Nov. 21].

Kollman, W.S., 2003. Environmental fate of spinosad. California Department of Pesticide Regulation, Environmental Monitoring Branch. 16 pp.

LA County—See Los Angeles County

LA Times, 2016. Los Angeles Times: Local. Mapping L.A. [Online]. Available: http://maps.latimes.com/neighborhoods [2016, Nov. 22].

LACAS—See Los Angeles County Audobon Society

Los Angeles County, 2016. Pacoima Spreading Grounds. Information from the county Dept. of Public Works and the county Flood Control District. 3 pp.

Los Angeles County, 2015. Department of Public Works. Los Angeles County Waterworks Districts. Drought emergency frequently asked questions (FAQs). 2 pp.

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 [2016, Nov. 29].

NAPIS—See National Agricultural Pest Information System

National Agricultural Pest Information System, 2016. Pest tracker: Exotic pest reporting. Mediterranean fruit fly (Medfly), *Ceratitis capitata*. [Online]. Available: http://pest.ceris.purdue.edu/pest.php?code=IOBMADA [2016, Nov. 23].

National Pesticide Information Center, 2000. Methyl bromide. Technical fact sheet. 6 pp.

NPIC—See National Pesticide Information Center

NPS—See U.S. National Park Service

Prokopy, R.J., Papaj, D.R., Hendrichs, J., and Wong, T.T.Y., 1992. Behavioral responses of *Ceratitis capitata* flies to bait spray droplets and natural food. *Entomologia Experimentalis et Applicata* 64: 247-257.

Reilly, S.K., 2003. Pheromones: risk assessment and decision making. Slide presentation by S.K. Reilly for the North American Free Trade Agreement Technical Working Group on Pesticides. Last modified 2/3/2003. 15 pp.

State of California, 2016. California Historical Resources. California State Parks, Office of Historic Preservation. [Online]. Available: http://ohp.parks.ca.gov/ListedResources/?view=county&criteria=19 [2016, Nov. 22].

State of California, 2013. Department of Pesticide Regulation. Ground water protection program: Regulations. [Online]. Available: http://www.cdpr.ca.gov/docs/emon/grndwtr/gwp_regs.htm [2016, Nov. 22].

UFL—See University of Florida

University of Florida, 2010. Mediterranean fruit fly—*Ceratitis capitata* (Wiedemann) (Insecta: Diptera: Tephritidae). Publication EENY–214. [Online]. Available: http://entnemdept.ufl.edu/creatures/fruit/mediterranean_fruit_fly.htm [2016, Nov. 23].

U.S. Census Bureau, 2016a. QuickFacts: Los Angeles City, California. Los Angeles County, California. [Online]. Available: https://www.census.gov/quickfacts/table/PST045215/0644000,06037 [2016, Nov. 21].

U.S. Census Bureau. 2016b. QuickFacts. Statistics for Los Angeles County. [Online]. Available: http://www.census.gov/quickfacts/table/LFE305214/06037/accessible [2016, Nov. 21].

U.S. Census Bureau, 2016c. EJScreen American Community Survey 2010-2014, Summary Report. U.S. Census Bureau, U.S. Environmental Protection Agency, last accessed Nov. 22, 2016.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2016. 96 hour report: Arleta (Los Angeles County). Mediterranean fruit fly (*Ceratitis capitata*). Compiled 11/21/2016.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2015a. For Information and Action. DA-2015-61. December 10, 2015. Subject: Removal of Mediterranean Fruit Fly (Ceratitis capitata) Quarantine Area in the La Mesa area of San Diego County, California. SPRO directive issued by USDA APHIS, Plant Protection and Quarantine: Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2015b. Human Health and Ecological Risk Assessment for Lambda-Cyhalothrin Fruit Fly Applications. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2014. Human Health and Ecological Risk Assessment for STATIC™ Spinosad ME Bait Applications. March 2014. 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, 2007. Importation of Solid Wood Packing Material. Supplement to the Final Environmental Impact Statement—October 2007.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2004. General reference for fruit fly programs: Tephritidae. March 2004. Prepared by Jeffrey N.L. Stibbick.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2003. Spinosad Bait Spray Applications. Nontarget Risk Assessment. October 2003. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2002. Rule for the Importation of Unmanufactured Wood Articles From Mexico, With Consideration for Cumulative Impact of Methyl Bromide Use. Final Environmental Impact Statement—September 2002.

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

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

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

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998b. Nontarget species risk assessment for fruit fly cooperative control programs. 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 [2016, Nov. 23].

U.S. Department of the Interior, Fish and Wildlife Service, 2016. Medfly, Arleta, Los Angeles, CA. IPaC Trust Resources Report. Generated November 22, 2016 07:07 AM MST, IPaC v3.0.10. 13 pp.

U.S. Environmental Protection Agency, 2015. Pacific Southwest, Region 9: California impaired waters. Summary of California's 303(d) listing pollutant trends. Last updated 9/13/2015. [Online]. Available: https://archive.epa.gov/region9/mediacenter/web/html/trends.html [2016, Nov. 23].

U.S. Environmental Protection Agency, 2011. 4-(or 5-)Chloro-2-methylcyclohexane-carboxylic acid, 1, 1-dimethyl ester (112603) fact sheet. Issued: 6/01. Last modified: 3/11. 2 pp.

U.S. National Park Service, 2016. National NAGPRA Online Databases. [Online]. Available: http://www.nps.gov/nagpra/onlinedb/index.htm [2016, Nov. 23].

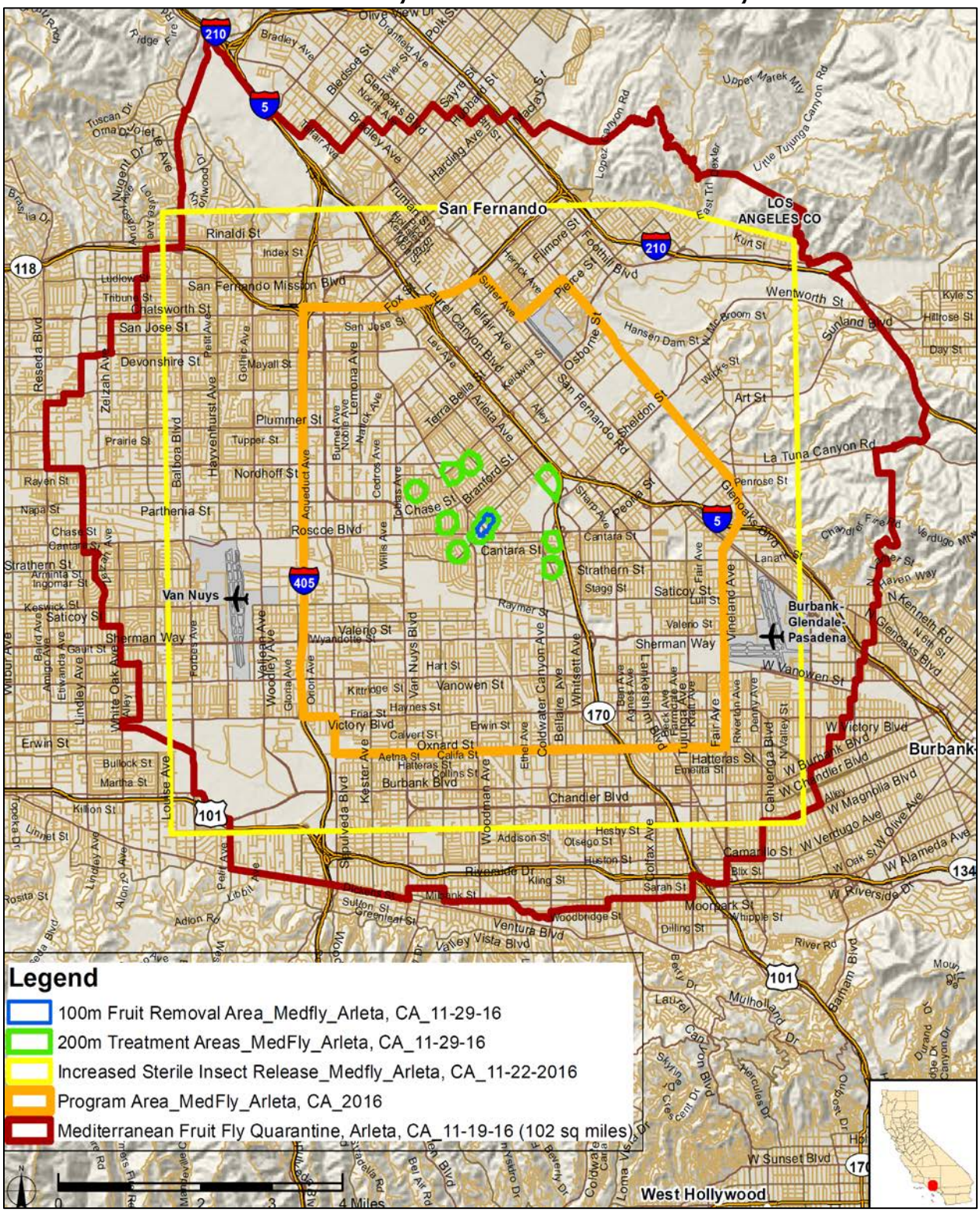
USCB—See U.S. Census Bureau.

USDA—See U.S. Department of Agriculture

Water Education Foundation, 2016. Where does my water come from? Los Angeles. 8 pp.

WEF—See Water Education Foundation

Appendix A. Medfly Quarantine in Los Angeles County, California, as of November 29, 2016.



Source: USDA APHIS PPQ

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

The following resources were used by USDA-APHIS-PPD on November 22, 2016.

- **NepaAssist (waters, superfund sites, historic sites, schools, demographics):** http://nepassisttool.epa.gov/nepassist/entry.aspx
- **National wildlife refuges, Native American areas:** http://viewer.nationalmap.gov/
- **USFWS critical habitat:** http://ecos.fws.gov/crithab/
- **Migratory birds, wetlands:** http://ecos.fws.gov/ipac/
- **Historic sites:** http://www.nps.gov/nr/research
- **Organic farms:** http://www.ams.usda.gov/AMSv1.0/nop
- **Nurseries:** www.googlemaps.com
- **Crop data: "USDA National Agricultural Statistics Service Cropland Data Layer. {2013}. Published crop-specific data layer [Online]. Available at** http://nassgeodata.gmu.edu/CropScape/