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Service

# **Mediterranean Fruit Fly Cooperative Eradication Program**

## **Riverside County, California**

### **Environmental Assessment December 2014**

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**Agency Contact:**

John C. Stewart  
National Fruit Fly Policy Manager  
Center for Plant Health Science and Technology  
Plant Protection and Quarantine  
Animal and Plant Health Inspection Service  
U.S. Department of Agriculture  
1730 Varsity Drive, Suite 400  
Raleigh, NC 27606

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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 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 December 10, 2014, two unmated female wild Medflies were detected on a citrus host in the city of Perris, Riverside County, California. Delimitation and larval surveys outward from the detection site were initiated. The detections were confirmed as Medfly on December 17, 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. Eight additional wild Medflies (1 mated female and 7 males) and nine larvae were collected from citrus and quince hosts in the same area between December 19 and December 23 (CDFA, 2014a)

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. To date every targeted Medfly population in California has been successfully eradicated (APHIS, 2014a; CDFa, 2014b). Two recent

examples are the Mediterranean fruit fly cooperative eradication programs in Los Angeles County (APHIS, 2014b) and in the area of Rancho Cucamonga, San Bernardino County (APHIS, 2012).

The present infestation is within a residential area of the city of Perris; the danger of the infestation spreading to commercial production of potential Medfly hosts (about six miles West) and to potential host crops in the rest of the State requires program decision makers to consider and propose emergency regulatory quarantines and treatments (APHIS, 2014c). In addition to commercial production, there are many privately-grown host plant species in Riverside County. This increases the likelihood of detections as well as the potential environmental impacts from infestations.

Riverside County growers ship fruits and vegetables to all 50 states and to more than 67 foreign countries. With its farming and vineyard operations, nurseries and produce markets, and the largest agro-tourism network in the United States, agriculture's total economic contribution to Riverside County's economy is \$4.33 billion annually (County of Riverside, 2013). Plant nurseries, wholesale produce markets and fruit stands in areas where Medflies are detected may be affected by the cooperative eradication program. There is no commercial host production within a 4.5 mile radius of the Medfly detections. The Perris Medfly infestation is the second detected in California during 2014 and represents a major threat to the agriculture and environment of California and other U.S. mainland States.

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 have been 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" (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). 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 considered for this program were discussed and comprehensively analyzed within the fruit fly chemical risk assessments

(APHIS, 1998a and 1998b) and risk assessments for spinosad (APHIS, 2014d, 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**

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

“No treatment” might be the only reasonable alternative for some sensitive sites. In such cases, lack of treatment could lead to a continuing and expanding infestation. An expansion of the infestation would likely result in substantial economic losses to growers in Riverside County and the rest of 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) 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 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 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 (IPM) Approach—Preferred Alternative**

APHIS' preferred alternative for the Perris Medfly program is eradication using an IPM approach. This alternative combines quarantine and commodity certification with eradication treatments. Successful eradication of the March 2014 Medfly infestation in Los Angeles County, using a similar IPM strategy, was declared and the quarantine was removed in August 2014 (APHIS, 2014a). Monitoring for Medfly continues throughout all susceptible counties of California.

CDFA (2014c) has determined there are no non-pesticidal options available to effectively eradicate Medfly. APHIS concurs with their assessment. 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).

APHIS' cooperative programs to eradicate Medfly in California have well-established procedures and treatments. The Perris 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 area<sup>1</sup> 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, 2014d, 2003, 1999, 1998a, and 1998b)).

The current eradication zone involves part of the city of Perris, in Riverside County, California. Delimitation, treatments and monitoring are carried out for approximately 81 square-miles around each property on which an adult fly has been trapped, or on which another life stage of Medfly is detected. A form of biological control (sterile insect technique, or SIT) is used in conjunction with targeted chemical control using spinosad bait spray around the detection sites. Fruit sampling is also employed around each detection property, and fruit removal occurs where there is evidence of a breeding population (CDFA, 2014c).

Several types of traps—including McPhail, trimedlure-Jackson, trimedlure-ChamP, and Multilure—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 and protein 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, 2014c).

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 sterile Medflies 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 200 meters around the find site is removed and taken for disposal under regulatory compliance (CDFA, 2014c).

The public will be notified 24 to 48 hours prior to insecticidal treatment, and will be provided with guidelines for post-treatment precautions and

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<sup>1</sup> For the purposes of this document, “program area” refers to everywhere inside the quarantine boundary, and includes both eradication treatment and regulatory control zones.

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, 2014c).

### **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. The site-specific characteristics of the Medfly program area were considered with respect to the preferred alternative's potential to affect human health, nontarget species (including threatened and endangered species), and environmental quality. Potentially sensitive sites have been identified, considered, and accommodated through special selection of eradication methods and use of specific mitigation measures.

Adult Medflies can fly and be carried for long distances 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.

#### **A. No Action**

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

ongoing 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 Integrated Pest Management (IPM) Approach—Preferred Alternative**

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

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

#### **1. Affected Environment**

##### **a. Land Characteristics and Demographics**

As of December 24, 2014, the Perris program area covers approximately 83 square miles in Riverside County. The area in and surrounding the infestation is a mixture of business and residential districts, highways and waterways. There are 30 plant nurseries within a radius of 4.5 miles of the Medfly detections. The closest commercial host production is approximately six miles away (APHIS, 2014c). California freeways passing through the program area include Interstate 215 and Highway 74. Although the current infestation is in a highly developed area, there are potentially sensitive sites located inside or within 15 miles of the program core – for more information see tables 1 and 2.

Riverside County is the fourth largest county in the state by population, stretching nearly 200 miles across and comprising over 7,200 square miles of fertile river valleys, low deserts, mountains, foothills and rolling plains. Riverside County shares borders with Imperial, Orange, San Diego, and San Bernardino Counties, extending from within 14 miles of the Pacific Ocean to the Colorado River (County of Riverside, 2014).

The City of Perris occupies approximately 31.4 square miles and has an estimated residential population of 72,326 (USCB, 2014). On average, Perris enjoys a sunny, mild, Mediterranean climate, getting only 10 inches of rain per year. Annual high temperatures average 97 degrees Fahrenheit, and low temperatures average 35 degrees. According to EPA reporting, air quality in Perris is 13 and water quality is 50 on a scale to 100, where

higher is better (City of Perris, 2013).

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

Commercial citrus production	<ul style="list-style-type: none"> <li>• 77 within 15 miles of core</li> </ul>
Organic farms	<ul style="list-style-type: none"> <li>• 8 within 15 miles of core</li> </ul>
Nearest Federal, State, and city parkland	<ul style="list-style-type: none"> <li>• Copper Creek Park: inside core</li> <li>• Foss Field Park: inside core</li> <li>• Metz Park: inside core</li> <li>• Paragon Park: inside core</li> <li>• Rotary Park: inside core</li> <li>• Lake Perris State Recreation Area: 3.5 miles</li> <li>• Cleveland National Forest: 12.9 miles</li> </ul>
Nearest historic sites	<ul style="list-style-type: none"> <li>• Southern Hotel: inside core</li> <li>• Perris Depot: inside core</li> <li>• 9 other sites within 15 miles</li> </ul>
Nearest international seaport	<ul style="list-style-type: none"> <li>• Long Beach Harbor: 68 miles</li> <li>• Los Angeles Harbor: 73 miles</li> </ul>
Nearest airports	<ul style="list-style-type: none"> <li>• Perris Valley Airport: inside core</li> <li>• March Air Reserve Base: 4.7 miles</li> </ul>
Nearest Native American areas	<ul style="list-style-type: none"> <li>• Soboba Reservation: 19 miles</li> <li>• Morongo Reservation: 22 miles</li> </ul>
Schools and academic institutions within the program area	<ul style="list-style-type: none"> <li>• 11 inside the core</li> <li>• 4 inside the quarantine boundary</li> <li>• 180 others within 15 miles</li> </ul>
Brownfield sites	<ul style="list-style-type: none"> <li>• Former Lakeside Chevrolet: 3.36 miles (inside quarantine)</li> <li>• Corona RDA Main at Ramona: 14.74 miles</li> </ul>

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

Wetlands	<ul style="list-style-type: none"> <li>• 7 different types of wetlands are found within 15 miles of the core, ranging from freshwater ponds and lakes to riverine and forested/shrub wetlands.</li> </ul>
Nearest water bodies	<ul style="list-style-type: none"> <li>• Perris Valley Storm Drain: 1.1 miles</li> <li>• Ski Land Lake: 2.4 miles</li> <li>• Drainage Ditch: 3.5 miles</li> <li>• Perris Reservoir: 3.7 miles</li> <li>• 23 others within 15 miles</li> </ul>
Impaired waters	<ul style="list-style-type: none"> <li>• 26 listed within 15 miles</li> </ul>
Distance to Pacific Ocean	<ul style="list-style-type: none"> <li>• About 33 miles at nearest point</li> </ul>

## **b. Water Resources**

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. Despite heavy rainfall in December, the Perris area remains in the "extreme drought" category (Miskus, 2014).

The city of Perris obtains electric power, irrigation and drinking water from the Colorado River and State water project reservoirs (WEF, 2014). Water located beneath the program area or that drains off it may enter 4 watersheds: Lower San Jacinto River, Perris Reservoir, Perris Valley-San Jacinto River, and Railroad Canyon Reservoir-San Jacinto River. The Medfly program treatments are designed to prevent contamination and degradation of water quality in program area watersheds.

## **2. Human Health**

Three major factors influence the human health risk associated with pesticide use, including fate of the pesticides in the environment, their toxicity to humans, and their exposure to humans. The analyses and data in prior Environmental Impact Statements 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 (APHIS, 2014d, 2008, 2001, 1999 and 1998a).

The principal concerns for human health are related to the potential program uses of chemical pesticides including spinosad protein bait and MB (as a fumigant). Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. Human exposure to Medfly program chemicals is minimized through program practices:

- 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).
- Spinosad is toxic to specific invertebrate species but is considered to be nontoxic to humans and other animals. Limited data exists regarding the toxicity of protein hydrolysate used in spinosad bait spray, however available data suggests low acute toxicity to human health. The program use of spinosad bait is limited to ground-based applications on host plants. Commercial applications, should they become necessary, will be applied to properties owned by commercial growers and producers where exposure to the general public is unlikely. If spinosad bait application is restricted

to target surfaces and made in accordance with EPA label instructions, effects to human health and the environment are expected to be incrementally negligible. The targeted method of ground-based, foliar application greatly lowers the probability of exposure and risk to program workers and the general public.

- If MB fumigation is needed, adherence to EPA label restrictions and application in enclosed areas or containers would protect applicators and the general public from risk of exposure to the fumigant (APHIS, 2007 and 2002).

Another mitigation measure designed to minimize exposure of humans to program pesticides is the requirement to conduct 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 7-14 day intervals for one life cycle of the fly (typically one to two months, sometimes longer dependent on temperature) (CDFA, 2014c). To adequately notify diverse populations, APHIS anticipates using documentation in several languages (Chinese, Japanese, Korean, Spanish, Tagalog, and Vietnamese) and Braille. The various versions will be distributed as needed.

Strong wind or rainfall forecasts for the program area may necessitate rescheduling of trap placements and chemical applications. 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 extreme weather events is unlikely to result in adverse impacts to the human environment, as potential chemical exposure dosage is likely to be greatly reduced by dilution in the storm's water and air.

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 EIS1 (APHIS, 2001).

In general, a well-coordinated eradication program using IPM technologies results in the least overall use of chemical pesticides, and minimizes their 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, pursuing either of these 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). There are two places listed on the National Register that will be within the quarantine zone: Southern Hotel and Perris Depot. These structures would not be affected by activities conducted under any of the alternatives analyzed in this assessment because APHIS does not anticipate any disturbance of the ground or the facilities. The surrounding landscape plants may have fruit removed by hand-picking. If treatments become needed, then where possible, bait stations would not be placed on the historic site's property. If any pesticide applications are deemed essential, then ground-based targeted bait applications or backpack spraying would be used.

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." There are a variety of schools within the treatment area of the quarantine zone. They include: Perris High School, Perris Junior High School, Praise Fellowship Christian Academy, Nan Sanders Elementary School, Saint James School, Perris Elementary School, Perris Lake High School, Perris Community Adult School, Val Verde Elementary School, Pinacate Middle School, and Perris Elementary School Annex. Maintenance of traps and any pesticide applications would occur when children are not present in the immediate area. The surrounding landscape plants may have fruit removed by hand-picking. Where possible, bait stations would not be placed on school property. If any pesticide applications are deemed essential, then a bait or backpack sprayer would be used. Any exposure of children to applied products is negligible based on the program's application methods and the product formulations. Additionally, the following schools are located outside the treatment zone but within the quarantine zone: Lighthouse Christian Academy, Good Hope Elementary School, Romoland Elementary School, and Rancho Verde High School. If treatments become needed at these additional locations, the same program requirements would be met.

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, 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 identified within Riverside County because APHIS intends to restrict program treatments and activities to an as-needed basis 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**

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. Using the Native American Graves Protection and Repatriation Act Online Databases (NPS, 2013; 25 U.S. Code § 3001 et seq.), APHIS determined the Soboba Reservation is nearest to the quarantine zone, about 19 miles away, while the Morongo Reservation is about 22 miles away. APHIS does not expect these Tribes to be affected by program activities because of the distance from the quarantine treatment zone to their Tribal lands. APHIS determined there are ceded Native American Tribal lands within the quarantine zone in Riverside County. APHIS is providing the EA to Tribal representatives for review and comment to ensure that any issues of concern are considered and addressed. The proposed action will not disturb the ground, so it is unlikely to affect Native American sites or artifacts. For these reasons, APHIS does not expect any Tribes to be affected by program activities. 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. To the extent that program activities may reduce potential pest effects on vegetation, APHIS program activities would enhance their value.

#### **b. Registered Historic Sites and Environmental Justice**

APHIS is initiating consultation with the State Historic Preservation Office (SHPO) for California based on Medfly interceptions in Riverside

County. There are 67 registered historic sites currently in use in Riverside County. Of those for which address information is available, only two are located within 4.5 miles of the current quarantine area. The majority of historic sites appear to be buildings with associated landscaping. To ensure historic properties would 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 may occur. If needed, modifications of normal program activities would be designed to reduce pesticide release at these locations.

Using 2010 Census data, the quarantine area within Riverside County is reported as having a total Hispanic population of 68 percent. Of the individuals reporting only one race, the population is 11 percent Black and 3 percent Asian. In addition, 16 percent of the individuals within the quarantine zone in Riverside County report they speak English “less than well.” (Data acquired via NepaAssist, see appendix B for website.) 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.

#### **4. Nontarget Species**

The principal concerns for nontarget species, including threatened and endangered species, relate to potential harm from the use of program insecticides to eradicate Medfly populations. Paralleling human health risk, the risk to nontarget species is related to the insecticides’ fate in the environment, their toxicity and exposure to nontarget species. APHIS’ Medfly programs are designed to prevent the introduction of program chemicals into nontarget areas. All of the insecticides considered in this EA are highly toxic to invertebrates, although the likelihood of exposure (and thus, impacts) varies a great deal from insecticide to insecticide and with the specified use pattern. In general, a well-coordinated Medfly eradication program using IPM technologies would result in the least use of chemical insecticides, 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 insecticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts.

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

needed for control (Prokopy et al., 1997). Medflies are attracted to the protein hydrolysate where they then receive a lethal dose of the insecticide (spinosad) that is mixed with the attractant. The protein hydrolysate is expected to have minimal impacts to environmental quality based on its use pattern and rapid degradation and would not result in impacts to nontarget species. The insecticide spinosad has low to moderate toxicity to wild mammals and birds. Spinosad toxicity to fish is moderate while aquatic invertebrates are more sensitive in acute and chronic exposures. Toxicity to terrestrial invertebrates is variable; however spinosad is considered highly toxic to honey bees. Risks to nontarget fish and wildlife are anticipated to be negligible based on the proposed use pattern that would result in a low potential for exposure to most taxa. A favorable environmental fate profile and low toxicity to most nontarget organisms further reduces the risk to terrestrial and aquatic animals (APHIS, 2014d).

If extreme weather events occur in the program area, program activities such as trap placement and chemical applications may need to be rescheduled. Site inspections will continue to ensure existing program treatments are not likely to affect nontarget organisms. The destruction or relocation of traps and treatments due to weather events is unlikely to result in adverse impacts to animal species and their habitats. Sites near the program area that might require special consideration, should the program area expand, include irrigation canals, coastal wetlands, and salt lakes of potential ecological importance. Program chemical applications will not be permitted at these sites or within refuges or other protected areas. Fruit survey and surveillance trapping will continue, and fruit stripping by hand will be undertaken if Medfly detections occur at such locations.

MB fumigation uses containment methods during application that protect non-target species by preventing exposure to the pesticide (APHIS, 2007 and 2002). Potential cumulative impacts of MB released into the global environment are considered in section 6 of this chapter.

#### **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.

APHIS evaluated the proposed Medfly program in terms of potential impact on migratory avian species. Implementation of the preferred alternative is not expected to have any adverse effect on migratory birds or their flight corridors. The proposed program would not involve removal or disturbance of any trees, shrubs, or other vegetation on the project site that could be used by birds. In addition, birds would not be exposed to program treatments because of the targeted nature of the applications.

#### **b. Endangered Species Act**

Section 7 of the Endangered Species Act (ESA) and ESA’s implementing regulations require Federal agencies to consult with the FWS and/or the National Marine Fisheries Service to ensure that their actions are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat. APHIS reviews maps of the program treatment area, and if listed species or critical habitat are present in the area, consults with the appropriate agency and implements any protection measures that are necessary to protect federally listed species or their habitats.

APHIS reviewed the current treatment area for the potential co-occurrence of federally listed species and critical habitat. APHIS did not identify any co-occurrence of listed species or critical habitat with the treatment area; thus, APHIS has determined that treatment activities will have no effect on these resources. Should the program area expand or further outbreaks be detected that are not considered herein, APHIS, in cooperation with CDFA, will continue to consider the potential for co-occurrence of federally listed species and critical habitat with the treatment area, and 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, 2014d, 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, 2014d, 2003, 1998a and 1998b) for a more detailed consideration of program pesticides' environmental fates. The bait ingredient, protein hydrolysate, is expected to have minimal impacts to environmental quality based on its use pattern and rapid degradation and would not result in impacts to environmental quality beyond those described for the below chemicals.

- **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 (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 ground water (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. 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. If treatment may occur in close proximity to a body of water, where pesticides may be directly discharged into the water, CDFA will analyze the environmental setting and establish site-specific best-management practices to follow. This method of application directly to host plants minimizes drift and runoff. Mitigation measures will be applied to protect marine and freshwater resources. Program personnel will maintain a minimum distance of 30 meters (98 feet) from surface water and when applying pesticides will adhere to label direction, State and Federal laws, and recommendations of environmental compliance staff. Water body contact is not anticipated in *Ceratitidis* spp. 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 EIS 1 (APHIS, 2001).

## **6. Cumulative Impacts**

This section considers the potential of the alternatives to cause cumulative impacts on the human environment. Federal non-action, and Federal action limited to quarantine and commodity restriction, are expected to result in the cumulative impacts that arise from tolerating uncontrolled Medfly infestations in the United States. APHIS considered implementation of the preferred alternative in the context of, and in conjunction with, other pest insect eradication and quarantine projects in the program area as well as other actions and activities known to be affecting the human environment.

Current and future in-State Medfly programs could potentially be merged into one larger program area. When a Medfly eradication program is combined with trapping and eradication actions 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 Medfly populations. 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, 2014d). Due to the passage of time and the prevailing weather conditions in southern California during 2014, 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.

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 programs (CDFA, 2014e)—

- Oriental fruit fly in Los Angeles County;
- Asian citrus psyllid in 11 counties, including Riverside County
- glassy-winged sharpshooter/Pierce's Disease—Statewide.

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

- European grapevine moth in 31 California counties, not including Riverside County;
- light brown apple moth in portions of many California counties, not including Riverside County.

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

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

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

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 the programmatic Environmental Impact Statements and the associated nontarget species and human health risk assessments (APHIS, 2014d, 2008, 2003, 2001, 1999, 1998a, and 1998b).

## **IV. Agencies Consulted**

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

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

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

U.S. Department of Agriculture  
Animal and Plant Health Inspection Service  
Plant Protection and Quarantine  
Center for Plant Health Science and Technology  
1730 Varsity Drive, Suite 400  
Raleigh, NC 27606

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

U.S. Fish and Wildlife Service  
Carlsbad Fish and Wildlife Office  
2177 Salk Avenue, Suite 250  
Carlsbad, CA 92008

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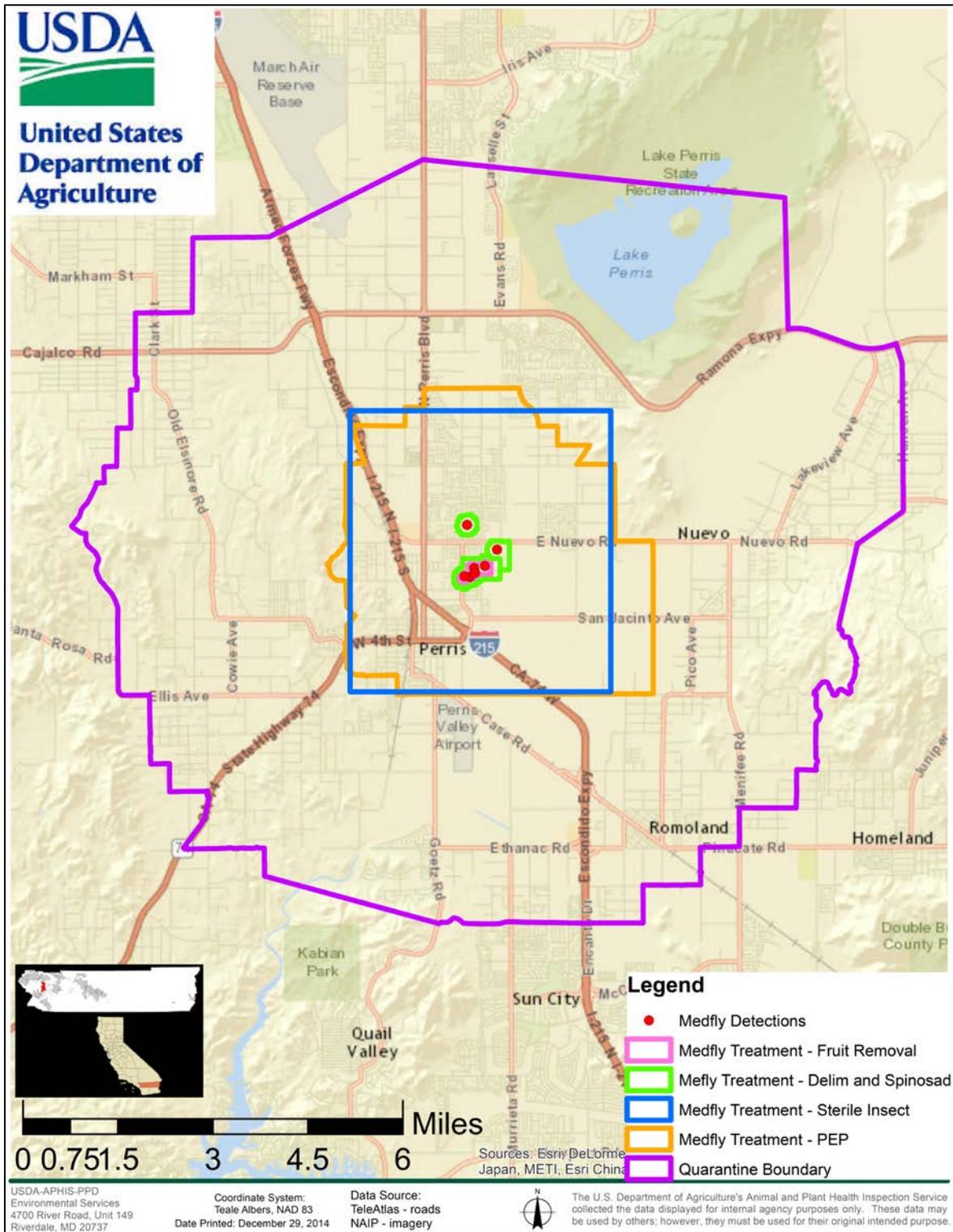
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# Appendix A. Perris Medfly Program Area— December 24, 2014.



Source: USDA APHIS PPD

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

*The following resources were used by USDA-APHIS-PPD-ERAS in preparing spatial data analyses of the proposed Perris, CA Medfly program:*

### Web-Based Mapping Application for Environmental Assessments

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

### For information on

- **Places:** <http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Places/MapServer>
- **Transportation:** <http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Transportation/MapServer>
- **Water:** <http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Water/MapServer>
- **Nonattainment Areas:** [http://geoplatform2.epa.gov/arcgis/rest/services/PM\\_Designations\\_Mapping/Nonattainment\\_Areas/MapServer](http://geoplatform2.epa.gov/arcgis/rest/services/PM_Designations_Mapping/Nonattainment_Areas/MapServer)
- **Boundaries:** <http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Boundaries/MapServer>
- **Bing Maps Road:** <http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>
- **Organic farms:** <http://www.ams.usda.gov/AMSV1.0/nop>
- **Historic Sites:** <http://www.nps.gov/nr/>
- **Tribal Ceded Lands:** <http://www.usgwarchives.net/maps/cessions/>
- **Native American Areas:** <http://viewer.nationalmap.gov/>