



United States
Department of
Agriculture

Marketing and
Regulatory
Programs

Animal and
Plant Health
Inspection
Service



Oriental Fruit Fly Cooperative Eradication Program

**City of Stockton, San Joaquin
County, California**

**Environmental Assessment,
September 2011**

Oriental Fruit Fly Cooperative Eradication Program

**City of Stockton, San Joaquin County,
California**

**Environmental Assessment,
September 2011**

Agency Contact

Wayne Burnett
APHIS Exotic Fruit Fly Director
Fruit Fly Exclusion and Detection Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
4700 River Road, Unit 7
Riverdale, MD 20737-1234

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Mention of companies or commercial products in this report does not imply recommendation or endorsement by the U.S. Department of Agriculture over others not mentioned. USDA neither guarantees nor warrants the standard of any product mentioned. Product names are mentioned solely to report factually on available data and to provide specific information.

This publication reports research involving pesticides. All uses of pesticides must be registered by appropriate State and/or Federal agencies before they can be recommended.

CAUTION: Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or other wildlife—if they are not handled or applied properly. Use all pesticides selectively and carefully. Follow recommended practices for the disposal of surplus pesticides and pesticide containers.

Table of Contents

I. Need for the Proposal.....	1
II. Alternatives	4
A. No Action.....	4
B. Eradication (Preferred Alternative)	4
III. Potential Environmental Consequences	6
A. Human Health.....	8
B. Other Considerations	9
C. Nontarget Species	10
D. Environmental Quality.....	12
E. Cumulative Effects.....	13
IV. Listing of Agencies Consulted	14
V. References Cited	15

I. Need for the Proposal

The oriental fruit fly, *Bactrocera dorsalis* (Hendel) (synonym = *Dacus dorsalis* Hendel), is a destructive agricultural pest in many parts of the world. It has a long history of being a serious pest of tropical and subtropical fruits in Southwest Asia and most of the Pacific Islands. Following introduction into the Hawaiian Islands in the 1940s, this fly multiplied rapidly and currently is known to infest more than 125 different host fruits in the State of Hawaii. Worldwide, the oriental fruit fly (OFF) has been recorded infesting more than 250 kinds of fruit and vegetables, including citrus, guava, mango, papaya, avocado, banana, loquat, tomato, surinam cherry, rose-apple, passion fruit, persimmon, pineapple, peach, pear, apricot, fig, and coffee berries.

OFF has been identified and eradicated numerous times in the continental United States since it was first found in California in 1960. Reintroduction has occurred due to infected fruits and vegetables that are brought across the border without inspection. Because of the species' rapid population growth and potential for damage, a prompt response is desired to contain and eradicate any infestation found in the conterminous United States.

The first detection of OFF in San Joaquin County in 2011 came on September 8 in the city of Stockton: one sexually mature male OFF and one unmated adult female OFF were collected from a trap placed in a plum tree (CDFA, 2011a). Because of the detection of an adult female, surveys for OFF larvae intensified in the neighborhood of the find. On September 10, 2011, a sexually immature female OFF was collected from a fruit fly trap placed in a citrus tree on an adjacent property within the city of Stockton, (CDFA, 2011b). On September 11, another sexually immature female OFF and one adult male OFF collected in Stockton, from two traps in persimmon and shade trees about half a mile away (CDFA, 2011c and 2011d). On September 13, two sexually mature male OFF were recovered from traps in an avocado tree and an orange tree within a few thousand feet of the original find (CDFA, 2011e and 2011f). Two days later, on September 15, another adult male OFF was removed from a trap in a kumquat tree about three miles away (CDFA, 2011g). The regions surrounding each infestation are a mixture of commercial agricultural production, residential neighborhoods, small businesses, schools, major freeways and railroads, parkland and protected natural areas, and developed recreational property.

Although OFF is not known to be established in California, its reintroduction occurs on almost on an annual basis. The last OFF eradication and quarantine program was established in the Pasadena region of Los Angeles County, California (about 338 miles from the city

of Stockton) beginning in late July 2010; treatment applications and monitoring were completed and the quarantine lifted almost a year later on June 3, 2011 (CDFA, 2011h). The most recent OFF detections in California before the current outbreak both occurred on August 22, 2011, approximately 250 miles away from Stockton in Los Angeles and Ventura Counties (see figure 1)(CDFA, 2011i and 2011j).

Many OFF-host plant species are grown in San Joaquin County and adjacent counties, which increases the potential environmental impact of the Stockton infestation. OFF infestations represent a major threat to the agriculture and environment of California and other U.S. mainland States. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) have proposed a cooperative program to eradicate the OFF infestation and prevent the spread of OFF to noninfested regions of the United States. USDA/CDFA cooperative program protocols for OFF eradication employ various action "triggers" for Federal involvement. One mated female, one larva, or eight adult flies within 3 miles during one life cycle will trigger eradication and quarantine in an urban area. Detection of six adult OFF (either gender) within 3 miles during one life cycle will trigger eradication and quarantine in an agricultural area. Stockton OFF find number 6 was recorded five days after the first detection. Since the detection locations occurred within the time and distance parameters, and because they were located near regions where there is commercial production of OFF-host commodities, State and Federal eradication and quarantine responses were triggered.

Each day that CDFA cannot conduct the necessary OFF eradication project activities increases the odds that the infestation will grow naturally and artificially through human assisted movement of infested commodities. Because of the nature of the detections, CDFA has therefore made a determination of a pest emergency which has been approved by California authorities (CDFA, 2011k). This determination has resulted in an amendment of State regulations to declare all of San Joaquin County an OFF eradication area, and allows for immediate implementation of detection, control and eradication actions.

APHIS' authority for cooperation in the program is based upon 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. Since 1984, APHIS has cooperated with State departments of agriculture on a number of successful OFF eradication programs. The most recent example is the Oriental Fruit Fly Cooperative Eradication Program conducted with CDFA in the Pasadena region of Los Angeles County, California (USDA-APHIS, 2010a; CDFA, 2010).

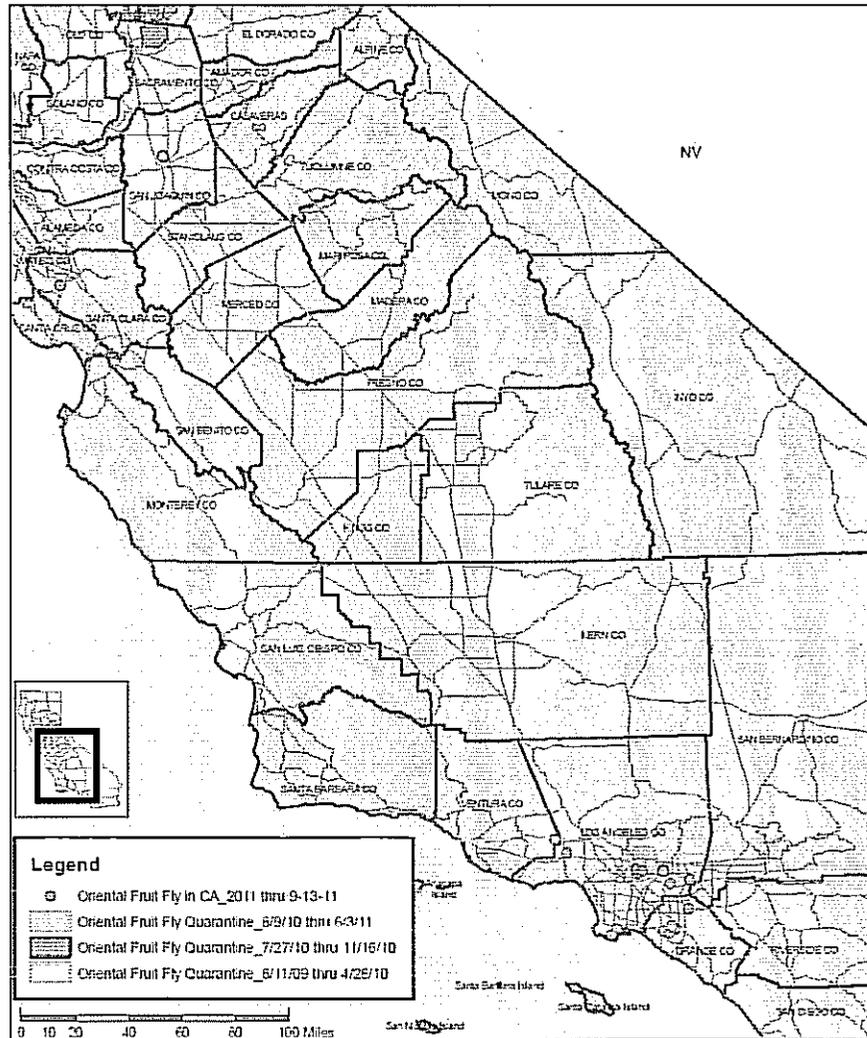


Figure 1. Oriental fruit fly detection and program areas in California, by county, 2011 through September 13, 2011. (Source: USDA-APHIS)

This site-specific environmental assessment (EA) analyzes the environmental consequences of alternatives which have been considered for OFF eradication, and considers, from a site-specific perspective, environmental issues relevant to this particular program. Alternative methods for OFF eradication have been discussed and analyzed comprehensively within the Fruit Fly Cooperative Control Program, Final Environmental Impact Statement—2001 (FF EIS) which is incorporated by reference and summarized within this EA (USDA-APHIS, 2001). The eradication measures being considered for this program have been discussed and analyzed comprehensively within the fruit fly chemical risk assessments (USDA-APHIS, 1998a and 1998b) and risk assessments for spinosad (USDA-APHIS, 1999a, 1999b, and 2003). Those documents are also incorporated by reference and summarized within this EA.

II. Alternatives

Alternatives considered for this program include (1) no action, and (2) eradication using an integrated pest management (IPM) approach. Component techniques of eradication include the use of chemical pesticides to facilitate the timely elimination of the current OFF infestation.

A. No Action

The no action alternative would result in taking no Federal action to eradicate OFF or restrict its expansion from the currently infested site. In the absence of a Federal effort, regulatory and eradication activity would be left to State and local government, grower groups, and individuals. Expansion of the infestation would be influenced by any pest control actions exerted over it, by the proximity of host plants, and by climatic conditions. (For details about the California State program for OFF, please visit the CDFA Web site at:

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

It should be noted that “no treatment” might be the only choice with respect to some sensitive locations where federally listed threatened and endangered species or critical habitats occur; in such cases, lack of action could result in a continuing and expanding infestation. Under the no action alternative, APHIS would continue cooperative practices to control outbreaks of OFF in California, including support of the CDFA detection trapping program. An expansion of the infestation would likely result in substantial economic losses to growers in the United States and losses of U.S. export markets.

B. Eradication (Preferred Alternative)

Eradication is the preferred alternative. It has been determined that no non-pesticidal options available will effectively eradicate OFF (CDFA, 2011). APHIS’ preferred alternative for the Stockton OFF program is eradication using an integrated pest management (IPM) approach, as has been used before in successfully managing California outbreaks of OFF. Multiple options for eradication of OFF are analyzed in the FF EIS (USDA–APHIS, 2001). Options considered for the preferred alternative include (1) male annihilation using bait stations, (2) supplemental spot spraying of chemicals, (3) regulatory treatments and control, (4) mass trapping, and (5) host removal. Successful eradication of the 2010 Pasadena OFF infestation using such an IPM strategy was declared in June 2011 and the quarantine was removed (CDFA, 2011h). Monitoring for OFF continues throughout all counties of California.

The program area for the Stockton infestation includes those portions of San Joaquin County which fall within an 81-square mile boundary (approximately 9 miles by 9 miles) centered on each detection site.¹ The current boundary encompasses about 118 square miles and will be adjusted, as necessary, to include other properties on which an adult fly has been trapped or on which another OFF life stage is found to be present. McPhail and Jackson traps are placed throughout the program area to delimit the infestation and to monitor post-treatment fly populations. These traps are serviced on a regular schedule for a period equal to three OFF generations beyond the date of the last fly find (CDFA, 2011).

Male attractant technique (MAT) is the standard treatment practice for OFF. The OFF MAT is deployed in a 1.5-mile radius from each fly detection site for a minimum of 9-square miles. Approximately 600 small, gel-like bait stations per square mile are applied to utility poles and street trees at least 6 feet above the ground. The technique is repeated every 2 weeks for a minimum of four applications, or one to two life cycles, depending on the severity of the infestation. These bait stations contain a male attractant (methyl eugenol) that is mixed with a small amount of the pesticide naled. The bait stations attract male OFF looking for an opportunity to breed. The females go unmated and, therefore, no offspring are produced, effectively causing eradication of the population (CDFA, 2011).

If OFF larvae or mated females are detected, a foliar bait ground treatment will also be applied. For such treatment, host trees and plants within a 200-meter radius of the find site are treated with highly-localized spray from a hand-held hose that consists of an organic formulation of the pesticide spinosad and protein bait. Should trap catches warrant it, foliar bait ground treatments may be extended up to a 200-meter radius to mitigate the spread of OFF (CDFA, 2011).

Larval surveys will be conducted up to 200 meters around any property where OFF are trapped, in order to determine if other life stages are present. The detection of larvae will result in the removal of fruit from 100 meters around all known infested and adjacent properties (CDFA, 2011).

Also, because of the mated female OFF detection, a quarantine boundary will be established to ensure that any host material that leaves the program area is free of OFF. Host material may be treated by cold treatment, vapor heat treatment, irradiation, or fumigation with methyl bromide (USDA-APHIS, 2001 and 1989).

¹ For the purposes of this document, "program area" refers to the eradication zone within the quarantine boundary—this includes both eradication treatment and regulatory treatment areas.

III. Potential Environmental Consequences

This EA analyzes the potential environmental consequences of alternatives that have been considered for OFF eradication, and considers, from a site-specific perspective, environmental issues relevant to this particular program. The preferred alternative, eradication, would involve an IPM approach that may use any or a combination of the following: (1) no action, (2) eradication chemical applications (protein bait spray and/or foliar spray spot treatment), (3) mass trapping for monitoring and surveillance purposes, and (4) regulatory quarantine treatment and movement control of host materials. The capability of an adult OFF to fly distances of 30 miles makes it possible for commercial host-plant growing and production regions outside the program area to become infested. Therefore, regulatory treatment methods used for movement of commercial produce are included as program options in the event that the program area should expand to include nurseries, groves, or orchards.

Alternatives for OFF eradication have been discussed and analyzed comprehensively within the FF EIS (USDA-APHIS, 2001). The attractant used in the OFF MAT is very specific for this group of flies, so much so that other insects (such as bees or butterflies) will not be harmed because they are not attracted to the lure. Review of the treatment protocols by CDFA and USDA has determined that OFF MAT does not cause any measurable adverse environmental or health risks (CDFA, 2011m). Therefore, the discussion in this section will focus on the other eradication measures of the preferred alternative.

The site-specific characteristics of the Stockton program area were considered with respect to the program's potential to affect (a) human health, (b) nontarget species (including threatened and endangered species), and (c) environmental quality. In addition, potentially sensitive sites have been identified, considered, and accommodated through special selection of eradication methods and use of specific mitigation measures. At this time the program area affects a portion of Stockton's suburban commercial and residential neighborhoods and farmland. Further analysis will be required regarding any expansion of the current program area boundaries.

Stockton is the county seat for San Joaquin County, and had a resident population of 291,707 recorded in the 2010 U.S. Census. The city is located in the Central Valley region of California, about 43 miles south of the State capital of Sacramento. The closest airport (domestic flights) is about 7 miles from the center of Stockton, and the closest international

airport is about 52 miles away near Sacramento (Travelmath.com, 2011). Major highways passing through the Stockton OFF program area include Interstate 5, State Route 99 and State Route 4. The city is connected westward with San Francisco Bay by a channel of the San Joaquin River, and is, with Sacramento, one of the state's two inland deep water sea ports. In and around Stockton are thousands of miles of waterways and rivers that make up the California Delta. The city is also a rail center and a processing and distribution point for farm products and wines from the Central Valley; two railway lines run north-south through the program area (Zagaris, 2011).

Stockton's location at the head of a navigable channel, approximately 90 miles inland from San Francisco Bay, allows the city to serve as a major shipping point for many of the agricultural and manufactured products of northern California. The San Joaquin Delta, created by the confluence of several rivers and many man-made channels, includes 1,000 miles of waterways and has in many ways shaped the resources available to and development of Stockton and surrounding communities. Rich peat soil and a temperate climate combine to make the area around Stockton one of the most productive agricultural and dairy regions in California. Current major crops include asparagus, cherries, tomatoes, walnuts and almonds, plus many other smaller-production orchard, row and feed crops. Grapes amount to 40 percent of the fruit and nut harvest, and wines are produced from vineyards north of Stockton (City of Stockton, 2011).

Wildlife, irrigation, transportation and recreation all owe their existence and success to the network of water bodies spread over the San Joaquin Delta (City of Stockton, 2011). The San Joaquin National Wildlife Refuge and the Stone Lakes National Wildlife Refuge are located fewer than twenty miles to the south and north, respectively, of the Stockton OFF program area. Municipal parks, biking and riding trails and other public recreational facilities dot the program area. There are also numerous State and regional parks in surrounding San Joaquin County. Yosemite National Park and several national forests are approximately 125 miles east of Stockton. Point Reyes National Seashore and the Pacific coastline are on a line about 90 miles to the west of the city. Ecologically-sensitive and registered historical sites exist throughout Stockton and will be discussed in further detail later in this document.

The OFF program area at present may affect primarily residential neighborhoods, small businesses, schools, farmland, wilderness conservation areas and developed recreational properties. This area covers about 118 square miles of land in San Joaquin County. According to established OFF program protocol, treatment placement is determined by encompassing an approximate radius of 1.5 miles around each property on which an adult fly is trapped, or on which property another life stage of

OFF is present. The portion of the county thus encompassed within the program area will be treated for the current OFF infestation.

For the mass trapping portion of this program, three types of traps—Jackson, yellow panel, and Multilure—are placed throughout the 81-square mile program area surrounding the detection site in order to delimit the infestation and to determine the efficacy of treatments. All monitoring traps are serviced for a period equal to three OFF life cycles beyond the date of the last fly detection (CDFA, 2011). Treatments will be repeated at 6- to 14-day intervals for one OFF life cycle. The eradication program will continue for three life cycles past the date of the last OFF trapped (CDFA, 2011). The OFF goes through a four-stage life cycle—egg, larva, pupa, and adult. Breeding is continuous, with several annual generations. Adults live an average of 90 days (USDA–APHIS, 2010b).

Stockton is located within the San Joaquin River watershed (CDOC, 2011). The city obtains irrigation and drinking water from groundwater, local rivers and streams (WEF, 2006). Construction of the Delta Water Supply pipeline and associated facilities is expected to be completed in 2012; this will reduce the demand on groundwater resources, which now contribute about 25% of the city's water supply (City of Stockton, 2011). Urban and agricultural runoff may flow directly into local waters, picking up trash, dirt, chemicals, and other contaminants along the way. The current eradication program calls for highly-localized chemical applications in designated properties and no-spray buffers around all sensitive areas, including all water bodies (CDFA, 2011); this method of application is designed to minimize the potential for introduction of program chemicals to local water resources.

A. Human Health

The principal concerns for human health identified in the FF EIS are related to potential program uses of the chemical pesticides (USDA–APHIS, 2001):

- naled lure - male attractant technique trap formulation;
- spinosad bait - spray formulation; and
- methyl bromide - a fumigant.

Three major factors influence the human health risk associated with pesticide use—their exposure to humans, their toxicity to humans, and the fate of the pesticides in the environment. Each of the program pesticides is known to be toxic to humans; however, exposure to the pesticides is likely to be minimal owing to program use patterns.

The Stockton eradication program will initially employ naled lure trapping and ground-based spot applications of spinosad bait. Potential exposure to naled lure is unlikely. Potential exposure is low for the spinosad bait to be used in this eradication program because treatments are limited to ground-based applications to plants at the find site and on adjacent properties. 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. The analyses and data of the FF EIS and human health risk assessments indicate that exposures to pesticides from normal program operations are not expected to result in substantial adverse human health effects. (Refer to the FF EIS (USDA–APHIS, 2001) and the human health risk assessments (USDA–APHIS, 1999a and 1998a) for more detailed information relative to human health risk.) No adverse impacts to human health are expected to occur from these actions, if executed properly and in accordance with label requirements.

Another mitigation measure that will further minimize exposure of humans to program pesticides is the requirement for public notification. The public will be kept informed of the OFF eradication program via written notices and news releases to the media. Residents will be notified at least 48 hours prior to insecticidal treatment or physical removal of potentially infested fruit from their property, and provided with guidelines for post-treatment precautions and harvest protocols (CDFA, 2011).

In general, a well-coordinated eradication program using IPM technologies results in the least usage of chemical pesticides overall, and the least potential to adversely affect human health. The no action alternative would not eliminate OFF as readily or as effectively as the eradication alternative. Over a protracted time period, there would likely be broader, more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts to human health.

B. Other Considerations

Potential environmental impacts of implementing the preferred alternative have been considered regarding historical and archeological sites that may exist in the Stockton program area. The city of Stockton contains many buildings and structures registered for historical preservation. Certain cemeteries and archeological sites are also protected within city limits, although there are none registered within the current program area (City of Stockton, 2011; NRHP, 2011) No adverse effects to such sites are anticipated as a result of program pesticide applications and prescribed monitoring. The State Historical Preservation Officer will be consulted should the program area expand to include potentially sensitive landmarks.

Some Executive orders, such as Executive Order 13045, “Protection of Children From Environmental Health Risks and Safety Risks, and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” as well as departmental and/or agency directives, call for special environmental reviews in certain circumstances. No circumstance that would trigger the need for special environmental reviews is involved in implementing the preferred alternative considered in this document. The program does not pose any disproportionate adverse effects to children, minority populations, or low-income populations over those effects to the general population.

Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments,” was issued to ensure that there would be “meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications....” Stockton was founded in an area settled at the time by the Northern Valley Yokuts, and many Native Americans live in San Joaquin County today (City of Stockton, 2011). The nearest federally registered tribal land (Ione band of Miwok TDSA) is in Amador County, about 21 miles northeast of the program area. No tribal lands are located within the current program boundary, and no tribal population is expected to be affected by program activities. Should future detections of OFF warrant expansion of the current program area into tribal lands, program officials will initiate consultation with the governing tribal authorities and local Tribal Historic Preservation Officers before undertaking further action.

C. Nontarget Species

The principal concerns for nontarget species, including threatened and endangered species, also relate to potential harm from the program use of pesticides. Paralleling human health risk, the risk to nontarget species is related to the pesticides’ exposure to nontarget species, toxicity to the nontarget species, and fate in the environment. All of the program pesticides are highly toxic to invertebrates; however, the likelihood of exposure (and thus, impact) varies a great deal with the use pattern.

A well-coordinated eradication program using IPM technologies (the preferred alternative) generally results in the least use of chemical pesticides overall, with minimal adverse impacts to nontarget species. The no action alternative is less effective at eliminating OFF, and is likely to result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact to the human environment.

Under the preferred alternative, eradication activities include OFF MAT and ground-based, foliar applications of spinosad bait to host plants, with fruit stripping as indicated by larval finds. The MAT lure used as an OFF male attractant is specific for this group of flies and will not harm other insects, such as bees or butterflies. The spinosad treatments target OFF host plants in a manner that minimizes potential exposure and associated risks to nontarget species. The spinosad bait applications attract only a small number of invertebrate species other than OFF. Fruit stripping will be limited to plants at larval find sites and on adjacent properties, and is expected to have no adverse effect on nontarget species. (Refer to the FF EIS (USDA–APHIS, 2001) and its nontarget risk assessments (USDA–APHIS, 2003, 1999b, and 1998b) for more information on risks to all classes of nontarget species.)

The Stockton program area was considered with respect to special characteristics that could influence the implementation of program operations. The potentially-affected region consists primarily of developed residential, agricultural and light industrial districts; program actions undertaken in these localities are expected to have negligible adverse effects on nontarget species and habitats.

In particular, APHIS considered potential program effects on federally listed species and critical habitat. Section 7 of the Endangered Species Act and its implementing regulations govern consultation with the U.S. Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service (NMFS) to ensure that agency 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 or critical habitat and identified critical habitat for the Delta smelt (*Hypomesus transpacificus*) and the Central Valley steelhead (*Onchorhynchus mykiss*). APHIS, in consultation with the FWS and NMFS, has determined that the program treatments will not affect threatened and endangered species or critical habitat because the Program treatments occur in developed residential areas, and the application methodology, ground based applications, for each of the Program pesticides have a low probability of run-off in to aquatic habitats. Should the program area expand or further outbreaks be detected that are not considered herein, APHIS, in cooperation with CDFA, will consult with the appropriate consulting agency, as necessary. A complete administrative record of this review is available upon request.

D. 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. Pesticide use is the primary concern of the public and the program in regard to preserving environmental quality. Although program pesticide use is limited, especially in comparison to other agricultural pesticide use, the anticipated actions 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.).

- Naled is practically nonpersistent in the environment, with reported field half-lives of less than 1 day. It rapidly degrades in the presence of sunlight. Naled is not strongly bound to soils. It is rapidly broken down if wet (a reported half-life of about 2 days), and it is moderately volatile. Soil microorganisms break down most of the naled in the soil. It, therefore, should not present a hazard to ground water. The half-life of naled on foliage ranges from 2.3 to 2.5 days. Plants reductively eliminate bromine from naled to form dichlorvos, which may evaporate or be further metabolized (Exttoxnet, 1996).
- 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 microorganisms 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 fumigation will not be used as an eradication treatment but may be employed as a regulatory treatment. Methyl bromide has a half-life in the environment of 3 to 7 days; however, the small quantities that would be used disperse immediately when fumigation chambers are vented. (Refer to the FF EIS (USDA-APHIS, 2001) for a more detailed consideration of the pesticides' environmental fates.)

E. Cumulative Effects

APHIS has considered the potential of program actions to contribute to cumulative impacts on the human environment. APHIS has considered implementation of the preferred alternative in conjunction with other pest insect eradication and quarantine projects in California. Should the Stockton program boundaries expand due to additional detections, CDFA has been authorized to eradicate OFF infestations throughout San Joaquin County. As of September 15, 2011, four OFF eradication programs are continuing in Orange County and Los Angeles County, well over 330 miles from San Joaquin County. These and other in-State OFF programs detections could potentially be merged into one large program area.

The treatments for potentially overlapping pest management programs in California target different insects and do not affect the same nontarget organisms. Additional programs in place at the time of preparation of this EA (CDFA, 2011n and 2011o) have been designed to target the following—

- Glassy-winged sharpshooter/Pierce's Disease – Statewide (San Joaquin County identified as one of the counties at risk);
- European grapevine moth in 30 California counties (including San Joaquin County); and
- light brown apple moth outbreaks in 16 California counties (including San Joaquin County)

No significant cumulative impacts are anticipated as a consequence of implementing the preferred alternative or its component treatment measures. There have been no residual impacts from previous Federal and non-Federal actions targeting fruit fly infestations in the Stockton region, 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 program.

As discussed previously, additional treatments and actions may be implemented in this program, including 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 FF EIS (USDA–APHIS, 2001) and nontarget species and human health risk assessments (USDA–APHIS, 2003, 1999a, 1999b, 1998a, and 1998b).

IV. Listing of 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

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Fruit Fly Exclusion and Detection Programs
4700 River Road, Unit 7
Riverdale, MD 20737-1234

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
Bay Delta Office
650 Capitol Mall, 8th Floor
Sacramento, CA 95814

National Marine Fisheries Service
Sacramento Area Office
650 Capitol Mall, Suite 5-100
Sacramento, CA 95814-4708

V. References Cited

California Department of Conservation, 2011. Watershed Portal: watershed browser. [Online]. Available: <http://www.conservation.ca.gov/dlrp/watershedportal/WatershedBrowser/> [2011, September 15].

California Department of Food and Agriculture, 2011a. Plant Health and Pest Prevention Services. Pest and damage record. PDR number 1644415. Collection date: September 8, 2011.

California Department of Food and Agriculture, 2011b. Plant Health and Pest Prevention Services. Pest and damage record. PDR number 390P06038520. Collection date: September 10, 2011.

California Department of Food and Agriculture, 2011c. Plant Health and Pest Prevention Services. Pest and damage record. PDR number 390P06038521. Collection date: September 11, 2011.

California Department of Food and Agriculture, 2011d. Plant Health and Pest Prevention Services. Pest and damage record. PDR number 390P06038522. Collection date: September 11, 2011.

California Department of Food and Agriculture, 2011e. Plant Health and Pest Prevention Services. Pest and damage record. PDR number 390P06038525. Collection date: September 13, 2011.

California Department of Food and Agriculture, 2011f. Plant Health and Pest Prevention Services. Pest and damage record. PDR number 390P06038526. Collection date: September 13, 2011.

California Department of Food and Agriculture, 2011g. Plant Health and Pest Prevention Services. Pest and damage record. PDR number 390P06038527. Collection date: September 15, 2011.

California Department of Food and Agriculture, 2011h. Oriental fruit fly eradicated from the Pasadena area of Los Angeles County. CDFA News Release # 11-026. Publication date: June 3, 2011.

California Department of Food and Agriculture, 2011i. Plant Health and Pest Prevention Services. Pest and damage record. PDR number 1322853. Collection date: August 22, 2011.

California Department of Food and Agriculture, 2011j. Plant Health and Pest Prevention Services. Pest and damage record. PDR number AM0P06000744. Collection date: August 22, 2011.

California Department of Food and Agriculture, 2011k. Finding of Emergency and Amendment of California Code of Regulations declaring all of San Joaquin County an Oriental Fruit Fly Eradication Area. Amendment approved by the Office of Administrative Law and the Secretary of Agriculture on 9/15/2011. Effective as of 9/15/2011.

California Department of Food and Agriculture, 2011l. Pest detection/emergency projects. Official notice for the city of Stockton: Proclamation of an eradication project regarding the oriental fruit fly. [Document created by CDFA on September 15, 2011 but displays a typed date of August 8, 2011.]

California Department of Food and Agriculture, 2011m. Oriental fruit fly project: Treatment information. (Modified – 08/08/11). [Online]. Available: http://www.cdfa.ca.gov/phpps/PDEP/treatment/oriental_ff.htm [2011, September 14].

California Department of Food and Agriculture, 2011n. Pierce's Disease Control Program: 2010 Annual Report to the Legislature. [Online]. Available: http://www.cdfa.ca.gov/pdcp/Documents/2010_Annual_Report_to_Legislature.pdf [2011, September 16].

California Department of Food and Agriculture, 2011o. Pest Exclusion: Interior Program. Quarantines in California. [Online]. Available: <http://www.cdfa.ca.gov/phpps/PE/InteriorExclusion/quarantine.html> [2011, September 16].

California Department of Food and Agriculture, 2010. Pest detection/emergency projects. Official notice for the cities of Arcadia, Pasadena, San Gabriel, San Marino and the communities of Altadena, East Pasadena and East San Gabriel: Proclamation of an eradication project against the oriental fruit fly. July 22, 2010.

CDFA—See California Department of Food and Agriculture

CDOC—See California Department of Conservation

City of Stockton, 2011. Official city website. [Online]. Available: <http://www.stocktongov.com> [2011, September 15].

Exttoxnet—See Extension Toxicology Network

Extension Toxicology Network, 1996. Extension toxicology network of Cornell University, Oregon State University, the University of Idaho, the University of California at Davis, and the Institute for Environmental Toxicology, Michigan State University. Pesticide information profiles: Naled. (1996, June–last update). [Online]. Available: <http://extoxnet.orst.edu/pips/naled.htm> [2010, June 22].

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

Kollman, W.S., 2003. Environmental fate of spinosad. California Department of Pesticide Regulation, Environmental Monitoring Branch. [Online]. Available: http://www.cdpr.ca.gov/docs/emon/pubs/fatememo/spinosad_fate.pdf [2010, June 22].

NRHP—See National Register of Historic Places

National Register of Historic Places, 2011. California – San Joaquin County. [Online]. Available: <http://www.nationalregisterofhistoricplaces.com/ca/San+Joaquin/state.html> [2011, September 15].

Travelmath.com, 2011. Major airports close to Stockton, California. [Online]. Available: <http://www.travelmath.com/closest-airport/Stockton,+CA> [2011, September 15].

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2010a. Oriental fruit fly cooperative eradication program, Pasadena Region, Los Angeles County, California. Environmental assessment—August 2010. USDA–APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2010b. Hungry pests. Invasive pest information Web page: Oriental fruit fly. USDA–APHIS, Riverdale, MD. [Online]. Available: <http://www.aphis.usda.gov/hungrypests/orientalFruitFly.shtml> [2011, September 15].

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

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

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

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

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

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

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1989. Action Plan, Oriental Fruit Fly, *Bactrocera dorsalis*, October 1989. New Pest Response Guideline by USDA APHIS/Plant Protection and Quarantine and Cooperating State Departments of Agriculture. 56 pp.

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

Water Education Foundation, 2006. Where does MY water come from? Central Valley Region. Stockton. [Online]. Available: <http://www.water-ed.org/watersources/community.asp?rid=7&cid=708> [2011, September 15].

WEF—See Water Education Foundation

Zagaris, P.M., 2011. Liberty Property Management: information about the Stockton area. [Online]. Available: <http://www.libertypropertymanagement.com/service-areas/stockton/> [2011, September 15].

**Finding of No Significant Impact
for
Oriental Fruit Fly Cooperative Eradication Program
City of Stockton, San Joaquin County, California
Environmental Assessment
September 2011**

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) has prepared an environmental assessment (EA) that analyzes alternatives for control of the oriental fruit fly (OFF), *Bactrocera dorsalis* (Hendel), an exotic agricultural pest that has been detected in the city of Stockton, San Joaquin County, California. The EA, incorporated by reference in this document, is available from—

USDA, APHIS, PPQ
State Plant Health Director
650 Capital Mall, Suite 6-400
Sacramento, CA 95814

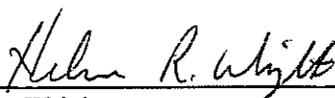
or

USDA, APHIS, PPQ
Fruit Fly Exclusion and Detection Program
4700 River Road, Unit 7
Riverdale, MD 20737

The EA for this program analyzed alternatives of (1) no action and (2) eradication for a section of San Joaquin County that currently encompasses part of the city of Stockton. Each of the alternatives was determined to have potential environmental consequences. APHIS selected eradication using an integrated pest management approach for the program because of its capability to achieve eradication in a way that also reduces the magnitude of those potential environmental consequences.

APHIS has reviewed the program area and proposed program treatment activities and determined the proposed action will not affect any listed species or critical habitat. All program treatments are restricted to residential neighborhoods, commercial groves, and industrial districts. No pesticide treatments will occur within 100 feet of any water body or to any native vegetation, riparian habitat, or other sites identified as environmentally sensitive, including critical habitat for listed species. Should the program area expand, or a new species or critical habitat be listed, APHIS will revisit this determination and consult with the appropriate consulting agency, as necessary. A full administrative record for this consultation is available upon request.

I find that implementation of the proposed program will not significantly impact the quality of the human environment. I have considered and based my finding of no significant impact on the quantitative and qualitative risk assessments of the program pesticides, and on my review of the program's operational characteristics. Further, I find the preferred alternative to be consistent with the principles of environmental justice as expressed in Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and the protection of children, as expressed in Executive Order 13045, "Protection of Children From Environmental Health Risks and Safety Risks." The program does not pose any disproportionate adverse effects to children, minority populations, or low-income populations over those effects to the general population. Lastly, because I have not found evidence of significant environmental impacts associated with this program, I further find that an environmental impact statement does not need to be prepared and that the program may proceed.



Helene Wright
State Plant Health Director, California
Animal and Plant Health Inspection Service
Sacramento, CA

9/21/11

Date