CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

OFFICIAL NOTICE
FOR THE CITY OF PERRIS
PLEASE READ IMMEDIATELY

PROCLAMATION OF AN ERADICATION PROJECT REGARDING THE MEDITERRANEAN FRUIT FLY

On December 10, 2014, two Mediterranean fruit flies (Medflies), *Ceratitis capitata* (Wiedemann), were trapped in the city of Perris, Riverside County. Based on the survey data, pest biology, information from the California Department of Food and Agriculture (CDFA) Mediterranean Fruit Fly Science Advisory Panel (MedSAP), recommendations provided by the CDFA Primary State Entomologist, and the CDFA "Action Plan for Mediterranean Fruit Fly *Ceratitis capitata* (Wiedemann)," an infestation of Medfly exists in the area.

Immediate action is needed to protect California from the negative economic and environmental impact the establishment of this pest would cause. Medfly is a serious exotic insect pest that is not native to California. Medfly originates in Africa, and has been accidentally introduced into southern Europe, western Australia, Central and South America, and Hawaii. Medfly is known to attack over 250 types of fruits and vegetables. Damage occurs when the female lays eggs in the fruit. These eggs hatch into larvae, which tunnel through the flesh of the fruit, making it unfit for consumption. This pest presents a major threat to a wide variety of California produce, such as pome and stone fruits, citrus, dates, avocados, and many vegetables. The combined 2012 gross value of these commodities was over $15 billion. The permanent establishment and spread of this pest would result in increased production and postharvest costs to safeguard commercial fruit from infestation, increased pesticide applications on both production agriculture and residential properties to mitigate damage, and lost economic activity and jobs from trade restrictions imposed by the United States Department of Agriculture (USDA) and foreign trade partners.

The eradication project is based on a work plan developed in consultation with the Pest Prevention Committee of the California Agricultural Commissioners and Sealers Association, United States Department of Agriculture and scientists on the MedSAP. Pursuant to sections 5401-5405 and 5761-5764 of the Food and Agricultural Code (FAC), the Secretary is mandated: to thoroughly investigate the existence of a pest; to determine the probability of the spread of a pest; to adopt regulations (Title 3 of the California Code of Regulations, Section 3591.5) as are reasonably necessary to carry out the provisions of this code; to abate a pest from the established eradication area; and, to prevent further economic damage.

In accordance with integrated pest management principles, the CDFA has evaluated possible eradication methods and determined that there are no cultural methods available to eradicate Medfly. CDFA will employ biological control in conjunction with limited chemical control as the primary tools, and will additionally use physical control via host fruit removal when there is evidence that a breeding population exists on a property.

To eradicate Medfly from this area, the treatment portion of the work plan is as follows:

- The sterile insect technique (SIT) makes use of sterile male Medflies to prevent the production of viable offspring. The wild female Medflies mate with the sterile males and lay infertile eggs, thereby disrupting the breeding cycle and causing the population to be

eliminated. Sterile flies are released by aircraft within a nine-square mile area around each detection site. Releases are repeated every three to four days for two life cycles of the fly (typically four to six months, dependent on temperature).

- Foliar bait treatments are used within 200 meters of each detection site in order to mitigate the spread of Medfly by eliminating those adult life stages not directly affected by SIT (i.e., mated females and sexually immature flies). Foliar bait ground treatments are a protein bait spray that contains an organic formulation of the pesticide spinosad (GF-120 NF Naturalyte® Fruit Fly Bait), and are repeated every seven to 14 days for one life cycle of the fly (typically two to three months, dependent on temperature). Visit the CDFA website to learn more about the treatment process at http://www.cdfa.ca.gov/plant/videos/spinosad/.

- If evidence that a breeding population exists on a property (i.e., immature stages, mated female, or multiple adults are detected), all host fruit from each detection site and all properties within a minimum of 100 meters of each detection site will be removed and disposed of in a landfill in accordance with regulatory protocols. Fruit removal will occur once at the beginning of the project, but may be repeated if additional flies are detected.

Public Notification:
Any resident whose property will be treated via foliar bait sprays or host fruit removal will be notified in writing at least 48 hours in advance of any treatment, in accordance with FAC Sections 5779 and 5401-5404. Following the treatment, completion notices are left with homeowners detailing precautions to take and post-harvest intervals applicable to any fruit on the property. For SIT applications, notification is given to the general public via mass media outlets such as newspapers or press releases, and information is posted on CDFA's website at http://www.cdfa.ca.gov/plant/PDEP/treatment/medfly_treatment.html. Information concerning the Medfly project will be conveyed directly to concerned local and State political representatives and authorities via letters, emails, and/or faxes. Press releases, if issued, are prepared by the CDFA information officer and the county agricultural commissioner, in close coordination with the project leader responsible for treatment. Either the county agricultural commissioner or the public information officer serves as the primary contact to the media.

Please contact the CDFA toll-free hotline at 800-491-1899 and staff will be able to assist with any questions related to the project. This telephone number is also listed on all treatment notices.

PROCLAMATION OF AN ERADICATION PROJECT
REGARDING THE MEDITERRANEAN FRUIT FLY

On December 10, 2014, two Mediterranean fruit flies (Medflies), *Ceratitis capitata* (Wiedemann), were trapped in the city of Perris, Riverside County. Based on the survey data, pest biology, information from the California Department of Food and Agriculture (CDFA) Mediterranean Fruit Fly Science Advisory Panel (MedSAP), recommendations provided to me by the CDFA Primary State Entomologist, and the CDFA "Action Plan for Mediterranean Fruit Fly *Ceratitis capitata* (Wiedemann)," I have determined that an infestation of Medfly exists in the area.

The Medfly is an exotic insect originating in Africa, and has been accidentally introduced into southern Europe, western Australia, and Central and South America. Its distribution in the United States is restricted to the Hawaiian Islands, where it was discovered in 1910. Worldwide, the Medfly has been recorded infesting over 250 different types of fruits and vegetables. A great number of crops in California would be threatened by the introduction of this pest including apple, apricot, avocado, cherry, date, grape, grapefruit, nectarine, orange, peach, pepper, and tomato. Damage occurs when the female lays eggs in the fruit. These eggs hatch into larvae, which tunnel through the flesh of the fruit, making it unfit for consumption.

Under my statutory authority, as Secretary of the CDFA, I have decided, based upon the likely environmental and economic damage that would be inflicted by this infestation of Medfly, that it is incumbent upon me to address this threat. This pest presents a major threat to a wide variety of California produce, with the combined 2012 gross value of these commodities being over $15 billion. The permanent establishment and spread of this pest would result in increased production and postharvest costs to safeguard commercial fruit from infestation, increased pesticide applications on both production agriculture and residential properties to mitigate damage, and lost economic activity and jobs from trade restrictions imposed by the United States Department of Agriculture (USDA) and foreign trade partners.

My duty to act, and this decision, is based upon authority set forth in Sections 24.5, 401.5, 403, 407, 408, 5401-5405, and 5761-5764 of the Food and Agricultural Code (FAC) authorizing and mandating me: to thoroughly investigate the existence of the pest; to determine the probability that the pest will spread; to adopt regulations (Title 3 of the California Code of Regulations, Section 3591.5) as are reasonably necessary to carry out the provisions of this code; to abate the pest from the established eradication area; and, to prevent further economic damage. The enclosed project work plan describes the actions to be taken by the CDFA which are necessary to mitigate the establishment and spread of this pest.

This decision to proceed with an eradication project is based upon a realistic evaluation that it may be possible to eradicate Medfly using currently available technology in a manner that is based on the enclosed work plan developed in consultation with the Pest Prevention Committee of the California Agricultural Commissioners and Sealers Association, the USDA, and scientists on the MedSAP. Due to the size of the infested area and the number of Medflies detected, historical data indicates that eradication is possible. The first California detections occurred in Los Angeles County in 1975, and since that time, numerous re-introductions have been delimited and successfully eradicated.

In making this decision, the CDFA has evaluated possible eradication methods. In accordance with integrated pest management principles, the following is a list of the options that I have considered for the eradication of this Medfly infestation: 1) physical controls; 2) cultural controls; 3) biological controls; and 4) chemical controls. Based upon input from my professional staff and outside experts familiar with Medfly, I have concluded that there are no cultural or natural

enemy biological controls that are effective to eradicate Medfly that allow the CDFA to meet its statutory obligations. To eradicate Medfly, I am ordering sterile insect release and ground applied foliar bait sprays. Releases of sterile flies will occur via aircraft, while foliar bait spray treatments consist of an organic formulation of spinosad applied to host trees using ground based equipment. Additionally, in the event of evidence of a breeding population on a property, host fruit removal will occur. Descriptions of these options are below and are contained in the attached work plan.

CDFA has prepared and certified a Final Environmental Impact Report (FEIR) entitled "The Exotic Fruit Fly Eradication Program Utilizing Male Annihilation and Allied Methods," which is implemented as per the operations described above. This FEIR identifies and analyzes alternative actions applicable to exotic fruit fly pest eradication projects. The enclosed work plan incorporates the appropriate integrated pest management techniques as described in the FEIR. The CDFA has not detected any local condition which would justify or necessitate preparation of a site specific plan.

Sensitive Areas

The treatment area has been reviewed through consultation with the California Department of Fish and Wildlife's California Natural Diversity Database for threatened or endangered species. The CDFA also consults with the California Department of Fish and Wildlife, the U.S. Fish and Wildlife Service and the National Marine Fisheries Services when rare and endangered species are located within the treatment area. Mitigation measures will be implemented as needed. The CDFA will not apply pesticides to bodies of water or undeveloped areas of native vegetation. All treatment will be applied to residential properties, common areas within residential development, non-agricultural commercial properties, and right-of-ways.

Eradication Plan

The eradication area includes those portions of Riverside County which fall within an approximate nine-square mile area around each property on which a Medfly has been trapped or on which another life stage of the insect is detected. A map of the detection site(s) with eradication boundaries and the proposed eradication work plan are attached. In summary form, the work plan will contain the following elements:

1. Delimitation. Multilure® traps will be used to delimit the infestation and monitor post-treatment populations after sterile Medfly releases have been completed. Multilure® traps baited with three-component lure are placed over a nine-square mile area around each detection at a density of 20 traps per square mile. These Multilure® traps are in addition to the normal complement of detection McPhail traps already in place. Five Trimedlure-Jackson traps and five McPhail traps are placed in each mile of the remaining delimitation area. Additional traps may be added to further delimit the infestation and to determine the efficacy of treatments. These traps will be serviced on a regular schedule for a period equal to three Medfly generations beyond the date of the last fly detected. In addition, host fruit will be sampled for the presence of eggs and larvae in a 200-meter radius around each detection site.

2. Treatment. Any Medfly detections within the original and/or expanded eradication area(s) will be treated according to the following protocol:

- The sterile insect technique (SIT) makes use of sterile male Medflies to prevent the production of viable offspring. The female Medflies mate with the sterile males and lay infertile eggs, thereby disrupting the breeding cycle and causing the population to be eliminated. Sterile flies are released by aircraft within a nine-square mile area around each detection site. Releases are repeated every three to four days for two life cycles of the fly (typically four to six months, dependent on temperature).

- Foliar bait treatments are used within 200 meters of each detection site in order to mitigate the spread of Medfly by eliminating those adult life stages not directly affected by SIT (i.e., mated females and sexually immature flies). Foliar bait ground treatments are a protein bait spray that contains an organic formulation of the pesticide spinosad (GF-120 NF Naturalyte® Fruit Fly Bait), and are repeated every seven to 14 days for one life cycle of the fly (typically two to three months, dependent on temperature).

- If evidence that a breeding population exists on a property (i.e., immature stages, mated female, or multiple adults are detected), all host fruit from each detection site and all properties within a minimum of 100 meters of each detection site will be removed and disposed of in a landfill in accordance with regulatory protocols. Fruit removal will occur once at the beginning of the project, but may be repeated if additional flies are detected.

Public Notification

Any resident whose property will be treated via foliar bait sprays or host fruit removal will be notified in writing at least 48 hours in advance of any treatment, in accordance with FAC Sections 5779 and 5401-5404. Following the treatment, completion notices are left with homeowners detailing precautions to take and post-harvest intervals applicable to any fruit on the property. For SIT applications, notification is given to the general public via mass media outlets such as newspapers or press releases, and information is posted on the CDFA website at http://www.cdfa.ca.gov/plant/PDEP/treatment/medfly_treatment.html. Information concerning the Medfly project will be conveyed directly to concerned local and State political representatives and authorities via letters, emails, and/or faxes. Press releases, if issued, are prepared by the CDFA information officer and the county agricultural commissioner, in close coordination with the project leader responsible for treatment. Either the county agricultural commissioner or the public information officer serves as the primary contact to the media.

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Attachments

INTEGRATED PEST MANAGEMENT ANALYSIS OF ALTERNATIVE TREATMENT METHODS TO ERADICATE MEDITERRANEAN FRUIT FLY
December 2014

The treatment program used by the California Department of Food and Agriculture (CDFA) for control of the Mediterranean fruit fly (Medfly), *Ceratitis capitata* (Diptera: Tephritidae), employs an area-wide sterile fly release technique, complemented with a targeted foliar bait spray treatment using an organic pesticide, and with fruit removal, as needed.

Below is an evaluation of alternatives treatment methods for Medflies which have been considered for eradication programs in California.

A. PHYSICAL CONTROL

Mass Trapping. This method involves placing a high density of traps in an area in an attempt to physically remove the adults before they can reproduce. For Medfly, the available lures have a limited drawing range of a few yards, and mass trapping has not been shown to be effective at eradicating Medfly populations.

Active Fly Removal. Adult flies are mobile daytime fliers, and adults could theoretically be netted or collected off of foliage. However, due to their ability to fly when disturbed, and the laborious and time prohibitive task of collecting flying insects from several properties by hand, it would be highly improbable that all of the adults could be captured and removed. Larvae live inside the fruit, so all potentially infested fruit in the entirety of the eradication area would have to be removed and disposed of in order to eliminate the larvae from the environment. For these reasons, active fly removal is not considered to be an effective alternative.

Fruit Bagging. Fruit bagging involves individually enclosing each developing fruit in a bag which prevents fruit flies from laying eggs. In order to be effective, frequent monitoring of the bagged fruit is needed to identify and repair damage to the bags before female flies can enter and lay eggs. Fruit bagging is considered an economically inefficient option for area-wide treatment because it is so labor intensive. It is also intrusive to residents, who may oppose having their home grown produce confined inside bags. Additionally, this method may possibly promote the dispersal of female flies in search of egg laying sites, thus spreading the infestation if other treatments are not used outside the fruit bagging area. For these reasons, fruit bagging is not considered to be an effective alternative.

Host Fruit Removal. Removal of host fruits involves the physical removal of all suitable fruit from both the host plant and from the surrounding ground, in order to eliminate developing eggs and larvae. The fruit is collected and double- bagged before being buried in a landfill. California's Medfly program performs host fruit removal within a minimum of a 100-meter radius of detection sites which are indicative of an active breeding area, such as those with immature stages, a mated female, or multiple adults, as an added measure to reduce populations within that area and to prevent spread of adult life stages which are not targeted under the preferred area-wide treatment of male attractant technique, such as sexually immature males and females. Fruit removal is not considered an economically inefficient option for area-wide treatment because it is so labor intensive. It is also intrusive to residents, who may oppose losing their home grown produce. Additionally, this method may possibly promote the dispersal of female flies in search of egg laying sites, thus spreading the infestation if other treatments are not used outside the fruit removal area. For these reasons, fruit removal is most useful as a complimentary treatment to one or more other treatments.

Host Plant Removal. Removal of host plants involves the large scale destruction of plants by either physical removal or phytotoxic herbicides. Host plant removal is not considered an economically inefficient option for area-wide treatment because it is so labor intensive. It is also intrusive to residents, who may oppose losing their plants. Additionally, this method may possibly promote the dispersal of female flies in search of egg laying sites, thus spreading the infestation if other treatments are not used outside the host plant removal area.

B. CULTURAL CONTROL

Cultural Control. Cultural controls involve the manipulation of cultivation practices to reduce the prevalence of pest populations. These include crop rotation, early harvest (i.e., harvesting green fruit before it is suitable for oviposition), using pest-resistant varieties, and intercropping with pest-repellent plants. None of these options are applicable for Medfly eradications in an urban environment with multiple hosts, and may only serve to drive the flies outside the treatment area, thus spreading the infestation.

C. BIOLOGICAL CONTROL

Microorganisms. No single-celled microorganisms, such as bacteria, have been shown to be effective at controlling Medflies.

Nematodes. No nematodes have been shown to be effective at controlling Medflies.

Parasites and Predators. Parasites and predators are not considered an effective stand alone eradication method because their success is density dependent; they are more effective against dense prey populations than against light populations, so their effectiveness decreases as the prey populations decline. Although several organisms, such as parasitic wasps, have been investigated as potential biological control agents against exotic fruit fly species, they have only been used in suppression programs and not in eradication programs. Since there is insufficient research documenting their efficacy in an eradication program, using these organisms could lead to the ineffectiveness of the program.

Sterile Insect Technique (SIT). The sterile insect technique (SIT) involves the production and release of reproductively sterile insects, with the goal of preventing reproduction in a pest population via the mating of the sterile insects with the existing field population. SIT is currently used in California's Medfly eradication programs as the overarching area-wide treatment, and has been used as an eradication tool in California since the first Medfly find in 1975. SIT works best when the ratio of sterile Medflies to non-sterile Medflies is high, on the order of 100 to 1. Therefore, SIT is most effective when used in combination with tactics which reduce the standing Medfly population, such as fruit removal targeting eggs and larvae and limited bait sprays targeting adults, especially already mated females. Combining SIT with these tactics has proven effective in preventing the permanent establishment of Medfly in California.

D. CHEMICAL CONTROL

Ground Applied Foliar Bait Treatment. Foliar bait treatments use an insecticide mixed with a food attractant in order to kill adults, particularly females. The CDFA uses this treatment to decrease the population density and to target adult life stages which are not susceptible to SIT (e.g., already mated females) in order to contain the population while SIT drives the population

to extinction. The foliage of host trees and shrubs within 200 meters of each detection site is treated with an organic formulation of spinosad bait spray (GF-120 NF Naturalyte® Fruit Fly Bait) using hand spray or hydraulic spray equipment. This treatment is repeated at seven to 14 day intervals for one life cycle beyond the last fly detected. While effective in the area treated, this type of treatment is considered economically inefficient to apply in a biologically relevant timeframe over the entirety of the eradication area, so it is used as a complimentary treatment to SIT rather than a standalone treatment.

Aerial Applied Foliar Bait Treatment. Aerial application of insecticide and bait combinations have been used by the CDFA in the past for Medfly control, but have not been used since 1994 to 1995 due to the refinement and successful implementation of an integrated approach combining localized controls (limited bait sprays applied by ground-based applicators and host fruit removal) with the overarching area-wide control with sterile insect releases.

Foliar Cover Spray Treatment. Foliar cover spray treatments use a contact insecticide in order to kill adults. This treatment is non-selective and will affect any insects which come into contact with it, including biological control agents. In order to sufficiently cover an area, much more pesticide must be applied per area than with foliar bait sprays. For these reasons, cover sprays are not used for this program.

Soil Treatment. Contact insecticides drenched into the soil have been used against Medfly in the past. The goal is to directly kill larvae entering the soil to pupate, pupae in the soil, and adults emerging from pupae by drenching the soil surrounding host plants. The insecticide previously used for this purpose contains the organophosphate insecticide diazinon. However, this treatment has not been used since 2001 in California because of its environmental toxicity, difficulty in removing obstructing ground clutter and debris, and a perceived lack of effectiveness in the varied soil types found in urban environments.

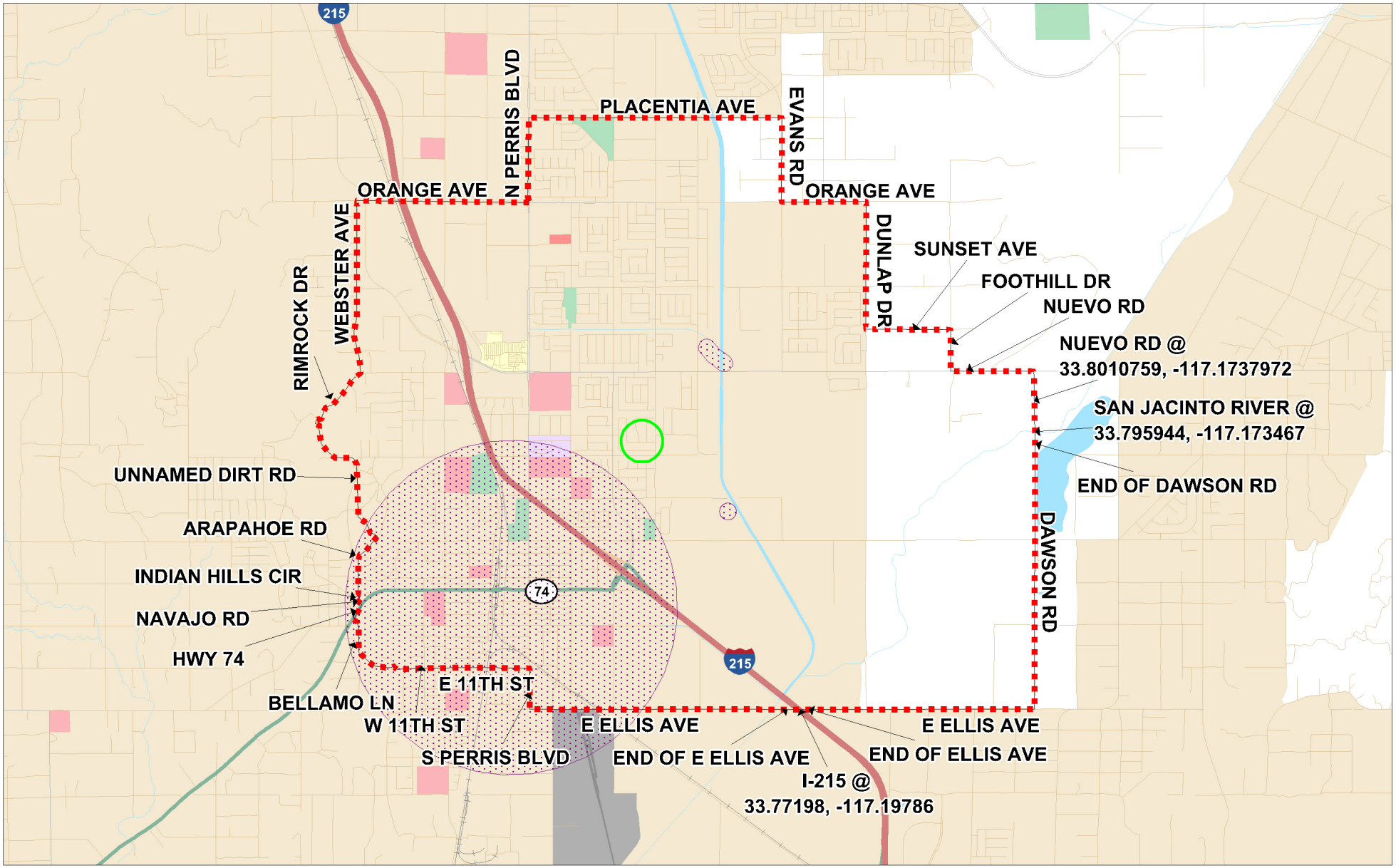
E. RESOURCES

California Department of Food and Agriculture. 1993. The Exotic Fruit Fly Eradication Program Utilizing Male Annihilation and Allied Methods. Final Programmatic Environmental Impact Report. State of California, Department of Food and Agriculture, Sacramento, California. State Clearinghouse Number 90021212, April 1993. 572 pp. http://www.countyofsb.org/agcomm/fruitfly/ExoticFFEIR.pdf

California Department of Food and Agriculture. 1994. The Exotic Fruit Fly Eradication Program Using Aerial Application of Malathion and Bait. Final Programmatic Environmental Impact Report. State of California, Department of Food and Agriculture, Sacramento, California. State Clearinghouse Number 91043018, April 1994.

United States Department of Agriculture. 2001. Fruit Fly Cooperative Control Program. Final Environmental Impact Statement 2001. 385 pp. http://www.aphis.usda.gov/plant_health/ea/downloads/fffeis.pdf

MEDITERRANEAN FRUIT FLY
PERRIS, RIVERSIDE COUNTY
2014



cdfa

MAXIMUM PROGRAM BOUNDARY

200M TREATMENT AREA

SENSITIVE ENVIRONMENTAL AREA / TREATMENT MITIGATIONS IN PLACE