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Guava Fruit Fly Cooperative Eradication Program

Los Angeles County, California

Environmental Assessment
May 2015

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I. Need for the Proposal

The guava fruit fly (GFF), *Bactrocera correcta* (Bezzi), is a destructive agricultural pest that feeds on many kinds of fruit and vegetables. GFF is native to Asia and occurs in India, Pakistan, Nepal, Sri Lanka, and Thailand. Damage occurs when the female lays eggs in the fruit. These eggs hatch into larvae, or maggots, which tunnel through the flesh of the fruit, making it unfit for consumption (CDFA, 2013; Weems and Fasullo, 2012; NAPIS, n.d.).

Recorded hosts include more than 70 plant species ranging from citrus, nuts, and other tree fruits to grapevines and gourds. (See appendix A for the proposed list of regulated species.) GFF lives in company with *Bactrocera zonata* and *Bactrocera tuberculata*, feeding on the same fruits, all of which must be considered potential hosts of GFF. Major U.S. crops at risk include cherry, citrus, gourd, grape, guava, melon, nectarine, and peach (CDFA, 2015a; Weems and Fasullo, 2012).

GFF breeding is continuous, with several annual generations; GFF eggs can develop into larvae in about 2 days (CDFA, 2013). GFF establishment would be disastrous to agricultural production in regions where host plants are grown. GFF has been identified and eradicated numerous times in the continental United States; however, this is the first time that a program quarantine has been established. It was first detected in the Western Hemisphere during 1986, in Orange County, California. GFF is periodically detected in California and, beginning in 1999, in Florida, but has not become established on the U.S. mainland (Weems and Fasullo, 2012). Reintroduction is most often due to infested fruits and vegetables that are brought into the United States without inspection.

On May 6, 2015, six adult male GFF were found in a fruit fly trap in a lemon tree on residential property in the City of Long Beach, California (CDFA, 2015b). On May 11, a State program to treat the GFF infestation in Long Beach was authorized (CDFA, 2015a) The State of California is currently overseeing three other GFF programs—two delimitation programs in Torrance and Baldwin Park (Los Angeles County), and an eradication program in Bay Point (Contra Costa County). Those three infestations have not triggered quarantine regulatory actions. Delimitation and eradication programs occur prior to the quarantine triggers in order to eliminate fruit fly infestations before the quarantine threshold is reached.

Between May 6 and May 14, 2015, two additional sexually mature male GFF were recovered from fly traps in the same neighborhood of Long Beach, California (CDFA, 2015c and 2015d). The region surrounding the infestation is a mixture of residential neighborhoods, commercial districts, schools, major freeways and railroads, airports, harbors and beaches, city

parkland and developed recreational property. There are numerous plant nurseries in and surrounding the infested area (see figure 1).

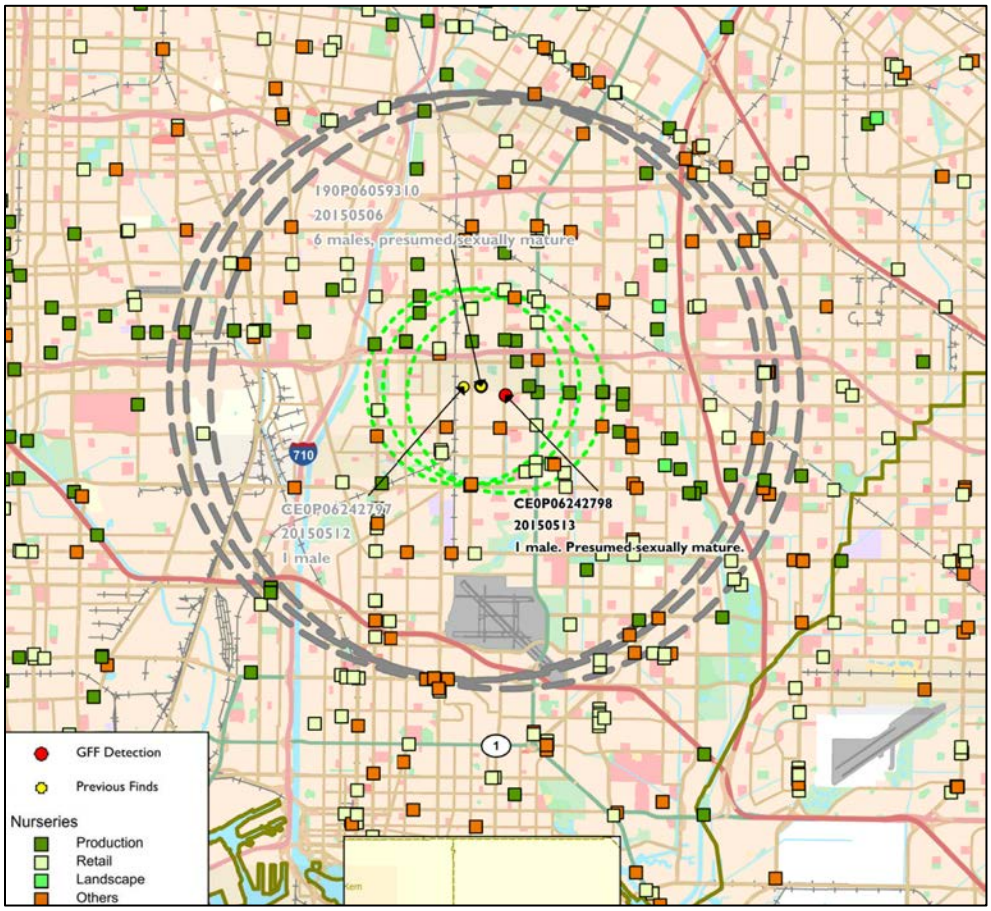

Figure 1. Long Beach nurseries in the vicinity of the eight GFF detections. (CDFA, 2015e)

California pursues an ongoing GFF detection and eradication program. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) are proposing a cooperative program to eradicate the GFF infestation and prevent the spread of GFF to noninfested areas of the United States. APHIS' authority for cooperation in the program is the Plant Protection Act (Title 4 of the Agricultural Risk Protection Act of 2000), which authorizes the Secretary of Agriculture to carry out operations to eradicate insect pests, and to use emergency measures to prevent the dissemination of plant pests new to, or not widely distributed throughout, the United States.

APHIS has cooperated with the California, Florida, Puerto Rico, and Texas Departments of Agriculture on fruit fly eradication programs since 1984. To date, every fruit fly population in California targeted by APHIS

cooperative programs has been successfully eradicated. The most recent *Bactrocera* spp. eradication program conducted by APHIS, in cooperation with CDFA, was completed on April 11, 2014, in a region of Los Angeles and Orange Counties (NAPPO, 2014). Monitoring for GFF continues throughout all susceptible counties of California.

CDFA/USDA cooperative program protocols for GFF eradication employ various "action triggers" for Federal involvement; triggers include fly life stage, location, and timing of detections, among other variables. The eighth GFF detection (CDFA, 2015d) triggered a regulatory quarantine of GFF-host plants in the City of Long Beach. Surveys for GFF have intensified in the neighborhood of the finds; a program has been designed to eradicate the Long Beach infestation. (See map of the proposed program area[1] in appendix B.)

Many GFF-host plant species are grown in Los Angeles County and adjacent regions, which increases the potential environmental impact of the current infestations. Commercial production of wine grapes, citrus, and other GFF-host commodities begins approximately 20 miles from the GFF detections (APHIS, 2015). Because of the species' rapid population growth and potential for damage, GFF infestations represent a major threat to the agriculture and environment of California and other U.S. mainland States.

This environmental assessment (EA) analyzes the environmental consequences of alternatives which have been considered for GFF eradication, and considers, from a site-specific perspective, environmental issues relevant to this particular program. Alternatives for GFF eradication have been discussed and analyzed comprehensively 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). Both EIS1 and EIS2 consider fruit fly risks and mitigations at the programmatic level. This case-specific EA incorporates the findings of EIS1 and EIS2 by reference.

The eradication measures being considered for this program have been discussed and analyzed comprehensively within APHIS' fruit fly chemical

[1] For the purposes of this document, "program area" refers to everywhere inside the quarantine boundary, and includes both eradication treatment and regulatory control zones.

risk assessments (APHIS, 2014, 2003, 1999, 1998a, and1998b). These documents are incorporated by reference and summarized within this EA. Environmental documentation for APHIS fruit fly control programs may be viewed online via the following links: APHIS fruit fly control program environmental documentation and APHIS GE control applications for plant health.

II. Alternatives

Alternatives considered for this proposed program include (A) no Federal action, and (B) the preferred alternative, eradication using an integrated pest management (IPM) approach. Component techniques of alternative B include the use of regulatory controls, high density trapping, host larval survey, and chemical pesticides to facilitate the timely elimination of the current GFF infestation. These alternatives and their component techniques have been discussed and analyzed comprehensively within EIS1 and EIS2 (APHIS, 2001 and 2008), and are incorporated by reference and summarized within this EA.

A. No Action

Under the no action alternative, there would be no Federal efforts to eradicate GFF 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.

The no action alternative might be the only reasonable alternative for some sensitive sites. In such cases, lack of treatment could lead to a continuing and expanding infestation. An expansion of the infestation would likely result in substantial economic losses to growers in the United States, as well as the loss of U.S. export 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 for GFF, please visit the CDFA web site at: http://www.cdfa.ca.gov/plant/PDEP/treatment/guava_ff.html.)

B. Eradication Using an IPM Approach (Preferred Alternative)

APHIS' preferred alternative for the Long Beach GFF program is eradication using an integrated pest management (IPM) approach. This

alternative combines quarantine and commodity certification with eradication treatments.

CDFA (2015b) determined non- pesticidal options are not available to effectively eradicate GFF. APHIS concurs with their assessment. Eradication efforts may employ any or a combination of the following:

- no action,
- regulatory quarantine treatment and control of host materials and regulated articles,
- host removal,
- eradication chemical applications (male annihilation bait stations and/or foliar spray spot treatment), and
- mass trapping for monitoring and surveillance purposes.

The current program area for the GFF infestation includes those portions of Los Angeles County which fall within an approximately 81 square mile area centered on each infestation site (see map in appendix B). The current boundary may be expanded to include other properties if additional adult flies or life stages are found.

The average GFF life span is not well documented. However, GFF development is assumed to be similar to other *Bactrocera* spp. The following is a generalized life history for *Bactrocera* fruit flies:

  - Mated females deposit eggs within the flesh of the fruit on a host plant.
  - Larvae hatch in a few days and burrow into the interior of the fruit to feed on the pulp for 4 to 12 days.
  - The larvae then drop from the fruit to pupate in the soil.
  - Adult flies emerge 7 to 10 days later, and feed for a period of time before mating; many generations are possible annually (Weeks et al., 2012).

APHIS' cooperative programs to eradicate GFF infestations in California use established procedures and treatments that have been designed with the GFF life cycle in mind:

- McPhail protein bait traps and Jackson pheromone lure traps are placed in varying densities 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 GFF generations beyond the date of the last fly find.

- Male attractant technique (MAT) is the standard eradication treatment practice for *Bactrocera* spp., including GFF. MAT is deployed in a

1.5-mile radius from each GFF detection site for a minimum of 9 square miles. Up to 600 small, gel-like bait stations per square mile are applied to utility poles and street trees at least 6 feet above the ground. For the Long Beach program, traps may be used where there are no suitable inanimate surfaces to place bait stations. The treatment is repeated every 2 to 6 weeks for a maximum 15 total applications per acre per year, depending on the severity of the infestation (State of California, 2015). These bait stations contain a male attractant (methyl eugenol (ME)) that is mixed with a small amount of the pesticide naled or the pesticide spinosad. The bait stations attract and kill male GFF looking for an opportunity to breed and feed on the attractant. The females go unmated and, therefore, no offspring are produced, effectively causing eradication of the population.

- Should evidence of a breeding GFF population be confirmed, a targeted, ground-based foliar bait 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 that consists of an organic formulation of the pesticide 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 pesticide treatments needed for control (Prokopy et al., 1997). Pest fruit flies are attracted to the protein hydrolysate, which can be derived from plants or yeast, where they then receive a lethal dose of the pesticide that is mixed with the attractant.

- Also, the evidence of a breeding population (mated female GFF, larvae, pupae, or multiple adult captures) will result in the removal of host fruit from all known infested and adjacent properties within a 100-meter radius (APHIS, 2015).

A quarantine boundary will be established to ensure that any host material that leaves the program area is free of GFF. Host material may be treated in enclosed areas or containers by cold treatment, vapor heat treatment, irradiation, or fumigation with methyl bromide (APHIS, 2004 and 2001).

Growers will be able to move their harvested fruit out of the quarantined area, under a limited permit, to enclosed facilities for processing into juice or for packing, after APHIS-approved methyl bromide treatment in the field or at the packing shed take place. Growers of host fruits may also treat their production areas using approved field program treatments (premise treatment) and, under compliance agreement, be certified for crop movement to packing sheds. Should the GFF quarantine spread to federally protected historical sites, wilderness, or tribal lands, program treatments will be restricted to those approved for the type of site in question.

Before taking action, program officials are to inform the public and impacted industry via press releases, meetings, and other forms of communication appropriate for the recipients. Notification letters will be sent to trading partners as they are identified. Given the potential impacts to commercial production, grove owners, packing sheds, nurseries, vendors, and other industry operations handling GFF host material will be notified of the GFF quarantine location and treatment schedule.

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

III. Potential Environmental Consequences

This EA analyzes the potential environmental consequences of alternatives considered for GFF control. The site-specific characteristics of the GFF 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. Should GFF detections lead to an expansion of the program boundary, APHIS will conduct any necessary 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 GFF 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. Preferred Alternative

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

- no action,
- regulatory quarantine treatment and movement control of host materials and regulated articles,
- host removal,
- eradication chemical applications (male annihilation bait stations and/or foliar spray spot treatment), and
- mass trapping for monitoring and surveillance purposes.

The attractant used in the GFF MAT poses a slight risk to certain terrestrial invertebrates that are attracted to the bait due to the presence of ME, and could receive a lethal dose of naled or spinosad. However, based on the selective nature and targeted application of the attractant, such impacts are expected to be localized and transient for sensitive taxa populations, including beneficial arthropods (APHIS, 2014).

Review of the treatment protocols by CDFA and APHIS indicates that the naled and spinosad formulations used for GFF MAT are not likely to cause adverse environmental or human health risks (APHIS, 2014, 1998a, and 1998b). Therefore, the discussion in this section will focus on the other eradication measures of the preferred alternative.

1. Affected Environment

a. Land Characteristics and Demographics

Land use in the immediate program area is urban residential. The region continues to experience extreme drought broken, to a certain extent, by periods of unusually heavy rainfall. Los Angeles County typically enjoys a temperate climate: summer weather is moderate to hot, with cool evenings; winters are mild. Historically, the average annual temperature for the region is 70 °F, and its average annual rainfall is 10 to 14 inches.

Los Angeles County is highly developed and has the highest population of any county in the United States with approximately 10.4 million residents. Tourism is the county's third largest industry, attracting millions of visitors annually (LA County, 2015a). The county forms part of the Los Angeles–Long Beach–Anaheim, California Metro Area (USCB, 2015a). The City of Long Beach spreads over 50.3 square miles and had an estimated population of 469,428 in 2013; census figures indicated approximately 8,100 residents per square mile (USCB, 2015b). Table 1 shows distances from the program area to demographic areas of potential concern.

Table 1. Distance from Center of Proposed Program Area to Certain Land Sites.*

Designated Land Use	Distance Rounded Off to Nearest Tenth of a Mile
Nearest Airports	• Long Beach Airport: 3.6 miles (within proposed GFF quarantine boundary) • Hawthorne Municipal Airport: 10.9 miles
Nearest Federal Lands	• Los Alamitos Armed Forces Reserve Center: 7.3 miles • Seal Beach Naval Weapons Station: 8.2 miles • Long Beach Naval Station: 8.6 miles • Seal Beach National Wildlife Refuge: 9.4 miles • Fort MacArthur: 12.6 miles
Nearest Historic Sites	• Los Cerritos Ranch House: 3.2 miles • Jennie A. Reeve House: 3.4 miles • Dominguez Ranch Adobe: 3.5 miles • Lynwood Pacific Electric Railway Depot: 5.0 miles • James C. Rives House: 5.3 miles • Darius David Johnston House: 5.5 miles • Paddison Ranch Buildings: 5.6 miles • Casa de Parley Johnson: 6.1 miles All are within the proposed GFF quarantine boundary.
Nearest International Seaports	• Long Beach Port: 8.6 miles • Port of Los Angeles (Wilmington Berths): 11.6 miles • Port of Los Angeles (Los Angeles): 12.5 miles
Nearest Native American Reservation	• San Manuel Reservation: 63.0 miles
Organic Production and Farmers Markets	• 5 organic farms within the proposed MAT treatment area • Farmers Market Plaza LLC: 3.5 miles (within proposed GFF quarantine boundary)
Schools and Academic Institutions	• 37 within proposed MAT treatment area (1 elementary school is also within proposed spinosad treatment area) • 248 within the proposed GFF quarantine boundary

* See appendix C for data sources.

Interstate freeways in the program area include routes 105, 405, 605, and 710. California State highways 19 and 91 pass through the program area. The GFF infestation is currently concentrated in a residential neighborhood; schools, municipal parks, biking and hiking trails, golf courses, and other public and private recreational facilities also occur within or near the program area. GFF host vegetation in the program area occurs on both private and municipal property. There are approximately 340 hazardous waste sites within 3 miles of the core program area, and approximately 27 National Pollutant Discharge Elimination System facilities outside the core but inside the current GFF quarantine boundary.

b. Water Resources

Los Angeles County obtains electric power, irrigation and drinking water from various resources, including ground water, the Colorado River, and State Water Project reservoirs (WEF, 2015). The GFF program area lies within the City of Long Beach, California. Almost 60 percent of the city's drinking water supply comes from local ground water. The local ground water originates from the San Gabriel Mountains to the north, travelling down the San Gabriel River watershed, and slowly making its way underground to Long Beach. Pumps extract ground water from the Long Beach Water Department-owned wells. The remainder of the city's drinking water supply is imported water purchased from the Metropolitan Water District of Southern California (MWD). MWD water comes from the Colorado River through MWD's aqueduct system and from the Sacramento River/San Joaquin Delta via the State Water Project. It is then treated in regional MWD treatment plants. To further reduce the need for imported water, the Long Beach Water Department also utilizes tertiary treated reclaimed water from the Sanitation Districts of Los Angeles County Long Beach Reclamation Plant. Reclaimed water is supplied to many of the city's public spaces and for industrial uses (LBWD, 2015).

Water located beneath the program area, or surface water that drains off of it, may enter two watersheds of the Los Angeles River and the San Gabriel River (EPA, 2015). Seven different types of wetlands are historically found within 11 to 39 miles of the program area; they range from freshwater ponds and rivers to estuarine and marine deepwater (see appendix C for data sources). There are no public drinking water reservoirs in the current GFF program area. (See table 2 for distances between the GFF program and certain water resources.)

Table 2. Distance from Center of Proposed Program Area to Certain Water Resources.*

Type of Resource	Distance Rounded Off to Nearest Tenth of a Mile
Nearest Water Bodies	• Los Angeles River: 2.0 miles (within proposed MAT treatment area) • Bouton Lake: 2.4 miles • San Gabriel River: 2.8 miles • Golfer Demise: 2.9 miles • Rio Hondo: 4.6 miles • LA River: 5.3 miles • Dominguez Channel: 5.7 miles • Coyote Creek: 5.8 miles The above water bodies, apart from the Los Angeles River, are located within the current GFF quarantine boundary but not within the proposed treatment area.
Impaired Waters	El Dorado Lakes (CAL4051501020000228153407): 5.1 miles (within the current GFF quarantine boundary)
Distance to Pacific Ocean	Approximately 8.5 miles

* See appendix C for data sources.

Severe drought conditions since 2012 led to unusual surface and ground water loss from severe drought conditions in California. Both short-term (i.e., less than 6 months' duration) and long-term adverse impacts are predicted for California's agriculture, ecology, and hydrology (Svoboda, 2015). (See figure 1 for a map of drought intensity.)

The State implemented water conservation programs and continues to seek additional ways to reduce water use. The Governor declared a drought State of Emergency in January 2014. On April 1, 2015, the State Water Resource Control Board (SWB) was ordered to implement mandatory water reductions in cities and towns across California to reduce potable urban water usage by 25 percent statewide. Cities with higher per capita use are facing mandatory water use reductions up to 36 percent based on their usage in 2013. The SWB has required such areas to achieve proportionally greater reductions than those with lower use, to help reduce statewide water consumption by 25 percent (LA County, 2015b).

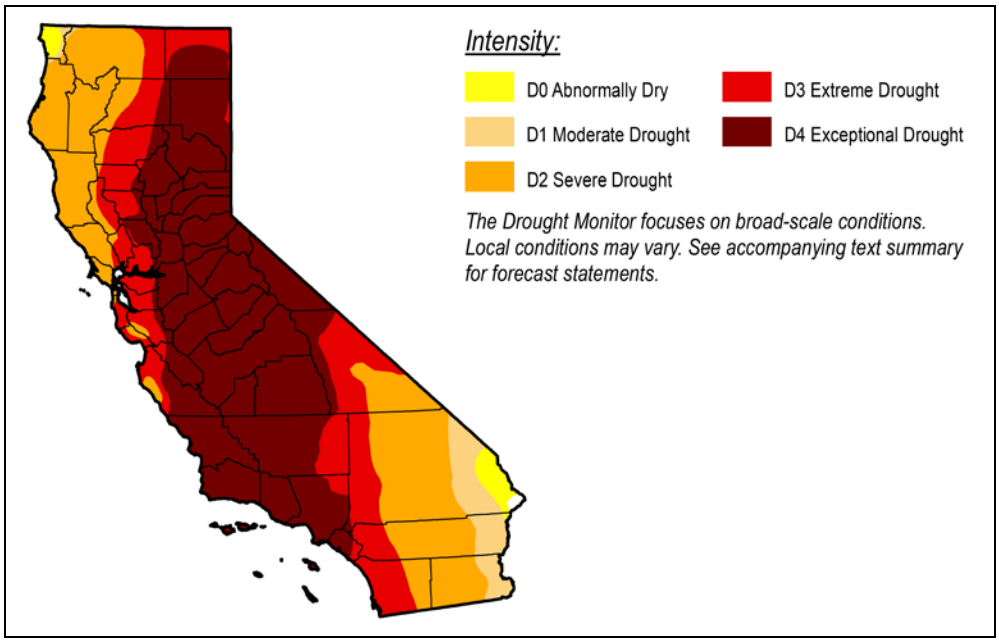

Figure 2. Drought status in California as of May 12, 2015. (Svoboda, 2015)

In 1985, California enacted legislation to protect the potability of its ground water; potential contaminants are identified and pesticide use restrictions are implemented for vulnerable areas (State of California, 2013). Ongoing surveys of California's waters continue to show substantial pollutant and toxicity levels; percentage increases, however, may reflect more thorough site assessment than increasing pesticide discharge and runoff (EPA, 2012).

The GFF eradication program calls for highly localized chemical applications in designated properties and no-spray buffers around all sensitive areas, including all water bodies. This method of application is designed to minimize the potential for introduction of program chemicals to local water resources.

2. Human Health

The principal concerns for human health are related to the program use of chemical pesticides including naled lure, spinosad protein bait, and methyl bromide (a fumigant). Naled is toxic to humans, birds, and invertebrates. Spinosad is toxic to specific invertebrate species but is considered to be nontoxic to humans and other animals. The ME attractant used as a lure is considered low hazard to human health (APHIS, 2014). Limited data exists regarding the toxicity of the protein hydrolysate; however, available data suggests low acute toxicity to 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.

Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. The GFF eradication program will initially employ naled lure or spinosad lure bait stations and traps, and ground-based targeted applications of spinosad bait. Potential exposure to naled is expected to be low because treatments are limited to spot applications of the pesticide formulation to areas of non-food plants, fence posts, utility poles, and other inanimate surfaces that are not readily accessible to the general public. 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; in cases where spinosad is used as a replacement for naled, effects to human health and the environment are likely to be beneficial (Vargas et al., 2009). The use of ME or protein hydrolysate as attractants in the GFF program will also result in a low risk to human health. The attractants have low toxicity, and their method of application results in a low probability of exposure and risk to workers and the general public.

Should treatment by methyl bromide fumigation be indicated, adherence to EPA label restrictions and application in enclosed areas or containers will protect applicators and the general public from risk of exposure to the fumigant (APHIS, 2007 and 2002).

The analyses and data of EIS1 and EIS2 and the associated human health risk assessments indicate that exposures to pesticides from normal program operations are not likely to result in substantial adverse human

health effects. (Refer to EIS1 and EIS2 (APHIS, 2001 and 2008) and the human health risk assessments (APHIS, 2014, 1999 and 1998a) for more detailed information relative to human health risk.)

Another mitigation measure designed to minimize exposure of humans to program pesticides is the requirement for public notification. Information concerning the GFF eradication project will be shared via press releases and media announcements to the general public. Either the county agricultural commissioner or public information officer will serve as the primary contact to the media. Any resident with property to be treated will be notified in writing at least 48 hours prior to treatment. Following the treatment, notices will be left with homeowners detailing precautions to take and safe intervals of time that should elapse before harvesting fruit on the property. Treatments are repeated at 7 to14 day intervals for one life cycle of the fly (typically 1 to 2 months, sometimes longer dependent on temperature) (CDFA, 2015b).

APHIS recognizes that a small portion of the population may have greater than usual sensitivity to certain chemicals, and that program treatments may pose higher risk for these individuals. Special communication strategies to mitigate this risk are discussed in detail in appendix C of EIS1 (APHIS, 2001).

Should strong wind or rainfall be forecast for the program area, trap placement and chemical applications may need to be rescheduled. Site inspections will continue to ensure that existing program treatments are not likely to affect humans. The destruction or relocation of traps and treatments due to weather events is unlikely to result in adverse impacts to the human environment, as the potential toxicity should be greatly reduced by dilution in the storm's water and air.

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

3. Other Aspects of the Human Environment

APHIS summarizes its findings on potential environmental impacts of implementing the action alternatives on historic sites, minority and/or low-income communities, and tribal interactions in the proposed quarantine program area in this section.

The National Historic Preservation Act of 1966, as amended (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 and 800). APHIS determined its fruit fly eradication programs are undertakings with no potential to affect historic properties. The California State Historic Preservation Office concurred with this finding for the Mediterranean fruit fly outbreak in Riverside County on January 20, 2015. APHIS is initiating a similar consultation for this outbreak. There are more than 500 registered historic sites in Los Angeles County. Of the eight historic sites located within the proposed quarantine zone (none in the treatment core), all are buildings with associated landscaping. In general, APHIS' fruit fly eradication programs are compatible with the preservation of historic sites because control activities are inconspicuously integrated into the site, do not disturb the ground, and do not affect human-made structures. In this program, APHIS intends to use bait treatments and, when necessary, fruit stripping by hand. Produce at farmer's markets will be inspected, and infested fruit may be confiscated and destroyed. APHIS will not conduct aerial chemical applications and does not anticipate using hand spraying with a backpack sprayer. If APHIS discovers any archaeological resources, the appropriate individuals will be notified. Implementation of the preferred alternative is not expected to have adverse impacts on historic sites because APHIS intends to restrict program treatments and activities to an as-needed basis.

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*. Using the 2010 Census Bureau estimates, in the 15-mile area of Los Angeles County centered in Long Beach, less than 15 percent of the population identifies itself as speaking English "not well" or "not at all" (USCB, 2010). This area of the City of Long Beach has approximately 21 percent of its residents with a household income base less than $25,000, and only 13 percent report less than a 9th grade education. The population reporting their race as Black is less than 7 percent, Asian as 14 percent, and Hispanic as 45 percent. The demographic information does not suggest low-income and minority residents would require additional outreach to ensure adequate understanding of the program. Consequently, APHIS finds additional outreach to these segments of the population is not needed. Because the preferred method of bait/pesticide application is to use poles above the height humans can reach unassisted, these segments of the population are not likely to be disproportionately adversely affected by the bait/pesticide treatments or their methods of application.

Federal agencies comply with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. The preferred alternative does not pose any disproportionate adverse effects to children because maintenance of traps and any pesticide applications would not occur when children are present in the immediate area. Although there are approximately 40 schools located within the treatment core, bait stations will not be placed on school property. Any exposure of children to applied products is negligible based on the program's application methods and the product formulations.

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, calls for agency communication and collaboration with tribal officials when proposed Federal actions have potential tribal implications. APHIS finds the nearest Federal reservation is more than 60 miles from the treatment area. There are 13 federally recognized tribes with ceded lands within the treatment and quarantine zones. APHIS will provide the tribes (with listed addresses) information about the Fruit Fly Cooperative Eradication Program. Individual tribal members living within the quarantine zone will not be disproportionately affected in comparison to other individuals in the area because bait treatments are applied to poles above the unassisted reach of most humans. 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 tribal members to be directly affected by program activities. If fruit fly detections warrant expansion of the program area onto tribal lands, program officials will initiate consultation.

A lack of Federal action could result in adverse economic and health impacts on affected producers and consumers, such as decreased harvests, higher consumer prices, loss of local employment, reduced nutritional options, loss of market share, compromised mental and physical health, loss of property, and so on. These indirect impacts 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.

4. Nontarget Species

The principal concerns for nontarget species, including threatened and endangered species, relate to potential harm from the use of program pesticides to eradicate GFF populations. Paralleling human health risk, the risk to nontarget species is related to the pesticides' fate in the environment, their toxicity and exposure to nontarget species. APHIS' GFF programs are designed to prevent the introduction of program chemicals into nontarget areas.

All of the pesticides considered in this EA are highly toxic to invertebrates, even though the likelihood of exposure (and any ensuing

impacts) varies among the pesticides and with the specified use pattern. In general, a well-coordinated GFF eradication program using IPM technologies would result in the least use of chemical pesticides, overall, with minimal adverse impacts to nontarget species. The no action alternative is less likely to be effective at eliminating GFF, and would be expected to result in broader and more widespread use of pesticides by homeowners and commercial growers, with a correspondingly greater potential for adverse impacts.

Should strong wind or rainfall be forecast for the program area, 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, as the potential toxicity should be greatly reduced by dilution in water and air.

The MAT portion of the GFF eradication program will employ a naled or spinosad formulation. The pesticide 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 and 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 (Extoxnet, 1996). (See below for a discussion of the pesticide spinosad.) Potential exposure of nontarget species to naled and spinosad are expected to be low because treatments are limited to spot applications of pesticide to areas of non-food plants, fence posts, utility poles, and other inanimate surfaces that are not readily accessible to most nontarget species.

Methyl eugenol, the lure ingredient in the MAT formulation, is considered moderately toxic to mammals if ingested, and can attract certain nontarget invertebrates (APHIS, 2014). The attractant used in the GFF bait stations poses a slight risk to certain terrestrial invertebrates that are attracted to the bait due to the presence of ME, and they could receive a lethal dose of naled or spinosad. However, based on the selective nature of the attractant, the impacts would be localized and transient, and are not anticipated to result in population level effects to sensitive taxa, including beneficial arthropods.

The GFF eradication program will also apply a targeted, ground-based foliar bait treatment for breeding a GFF population. For this, host trees and plants within a 200-meter radius of the GFF find site are treated with a highly localized spray that consists of an organic formulation of the pesticide spinosad combined with 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 pesticide treatments needed for control (Prokopy et al., 1997). GFF are attracted to the protein hydrolysate where they then receive a lethal dose of the pesticide (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. The protein is not expected to result in impacts to nontarget species.

The pesticide 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, 2014).

For the fumigant methyl bromide, the sealed methods for its application are designed to protect nontarget species by preventing their exposure to the pesticide (APHIS, 2007 and 2002). Potential cumulative impacts of methyl bromide released to the global environment are considered in section 6 of this chapter.

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. No program chemical applications will 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 GFF detections occur at such locations.

a. Migratory Birds

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

More than 500 species of birds have been documented in Los Angeles County (LA Audubon, 2006). This southern region of California, which is part of the Pacific Flyway, is an important migration corridor that provides suitable habitat for many bird species. APHIS evaluated the proposed GFF program in terms of potential impact on migratory avian species. Given the extent of urbanization within the treatment area and the methods of application, implementation of the preferred alternative is not expected to have any adverse effect on migratory birds or their flight corridors. The proposed program would not involve removal or disturbance of any trees, shrubs, or other vegetation on the project site that could be used by birds. In addition, birds would not be exposed to program treatments because of the targeted nature of the applications.

b. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) and ESA's implementing regulations require Federal agencies to consult with 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 coordinates with the FWS Ecological Services Field Office, as well as with State authorities, before implementing GFF program activities. FWS reviews maps of the quarantined area and notifies APHIS if listed species are present in the program area. If listed species are present, APHIS implements protection measures for those species as approved by FWS.

APHIS reviewed the program area and proposed treatment activities for potential co-occurrence of federally listed species and critical habitat to determine if any proposed program treatments may affect listed species or critical habitat. APHIS examined the program area and adjacent regions for the presence of listed species and critical habitat. No federally listed species occur within the spinosad treatment or MAT area. In a May 15, 2015 report, the California Natural Diversity Database notes the historic occurrence of California Orcutt grass within the quarantine area, but the plant is reported to be extirpated from the area. (See appendix C for CNDDB data source.) Therefore, APHIS did not identify any potential co-occurrence of listed species or critical habitat within the program area. Because the current program activities are limited to developed residential areas, APHIS determined there is no potential for effects to listed species

or critical habitat. Should the program area expand or further outbreaks be detected, APHIS, in cooperation with CDFA, will consult with FWS and other appropriate agencies, as necessary. A complete administrative record of this review is available upon request. (Refer to EIS1 and EIS2 (APHIS, 2001 and 2008) and the supporting nontarget risk assessments (APHIS, 2014, 2003 and 1998b) for more information on risks to all classes of nontarget species.)

5. Environmental Quality

The principal environmental quality concerns are for the protection of air quality, water quality, and the minimization of the potential for environmental contamination. In relation to preserving environmental quality, program pesticides remain the major concern for the public and the program. Although program pesticide use is limited, especially in comparison to other agricultural pesticide use, the proposed action would result in a controlled release of chemicals into the environment. The fate of those chemicals varies with respect to the environmental component (air, water, or other substrate) and its characteristics (temperature, pH, dilution, etc.). The environmental fates of naled, spinosad, ME, and methyl bromide are outlined below. (Refer to EIS1 and EIS2 (APHIS, 2001 and 2008) and the risk assessments (APHIS, 2014, 2003, 1998a and 1998b) for a more detailed consideration of program pesticides' environmental fates.) 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 environmental quality beyond those described for the below chemicals.

- **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 microbes break down most of the naled in the soil; therefore, it should not present a hazard to ground water. The half-life of naled on foliage ranges from 2.3 to 2.5 days. Plants remove bromine from naled to form dichlorvos, which may evaporate or be further metabolized (Extoxnet, 1996).

- **Spinosad** is not considered mobile in soil; it adsorbs strongly to soil particles and is unlikely to leach to great depths. Dissipation half-lives for spinosad in the field may last 0.3 to 0.5 day. It is photodegraded quickly on soil exposed to sunlight. Spinosad is quickly metabolized by soil micro-organisms under aerobic conditions, and has a half-life of 9.4 to 17.3 days. Spinosad is not sensitive to hydrolysis, but aqueous photolysis is rapid in natural sunlight (half-life of less than 1.0 to 1.6 days), and is the primary route of degradation in aquatic systems exposed to sunlight. Under anaerobic conditions, the degradation rate is slower, between 161 and 250 days. Spinosad has a

half-life of 2.0 to 11.7 days on plant surfaces. After initial photodegradation, residues are available for metabolism by plant biochemical processes. Effects from residues of individual treatments are no longer detectable in environmental substrates within a few weeks of application (APHIS, 2014; Kollman, 2003).

- **Methyl eugenol** (ME) is a volatile compound. In the atmosphere, ME is degraded by reaction with hydroxyl radicals. ME is not expected to undergo hydrolysis in the environment. In water, it adsorbs moderately well to suspended solids and sediment. ME is expected to have high mobility in soil. Dissipation of ME from soil and from water is slower in colder temperatures. Half-lives of ME are estimated to be 5 hours in the atmosphere, 8 days in soil, 8 days in water, and 32 days in sediment (APHIS, 2014).

- **Methyl bromide** (MB) 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 days. The degradation half-life of MB in soil ranges from 31 to 55 days. MB has a low affinity to bind to soils, but is not considered a major contaminant of ground water (NPIC, 2000). The small quantities used to treat for GFF disperse when fumigation chambers are vented. (See section 6 of this chapter regarding MB's potential cumulative impacts to the environment.)

Urban and agricultural runoff may flow directly into local waters, picking up trash, dirt, chemicals, and other contaminants along the way. If treatment is indicated in close proximity to a body of water where pesticides might be directly discharged into the water, CDFA will analyze the environmental setting and establish 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. Personnel will maintain a minimum distance of 98 feet (30 meters) from surface water, and when applying pesticides will adhere to label direction, State and Federal laws, and recommendations of the environmental compliance staff associated with the program. Water body contact is not anticipated due to the targeted application and environmental fate of pesticides used in *Bactrocera* spp. cooperative eradication programs.

The alternatives were compared with respect to their potential to affect environmental quality. Risk to environmental quality is considered

minimal for the preferred alternative. 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 would likely result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts.

The proposed program area was examined to identify characteristics that would tend to influence the effects of program operations. Potentially sensitive areas were identified, considered, and accommodated, as necessary, through special selection of control methods and use of specific mitigation measures. Allowances were made for the special site-specific characteristics that would require a departure from the standard operating procedures. The approaches used to mitigate for adverse impacts to bodies of water are described in EIS1 (APHIS, 2001).

6. Cumulative Impacts

This section considers the potential of the alternatives to cause cumulative impacts on the human environment. Not taking Federal action is expected to result in the cumulative impacts that arise from tolerating uncontrolled GFF infestations in the United States. The quarantine and commodity certification alternative places the burden of control efforts and expense on producers already engaged in complying with other quarantine and commodity certification requirements. Also, this alternative may increase the time it takes for commodities to reach their intended markets, or may prevent them from reaching consumers at all, which may contribute to negative public perception of the affected industry.

APHIS considered implementation of the preferred alternative in the context of, and in conjunction with, other pest insect eradication and quarantine projects in the Long Beach program area (such as light brown apple moth and glassy-winged sharpshooter eradication efforts). The combination of different pesticide chemistries, targets for application, and application timings for these programs suggest interacting, or multiple exposures are not likely to create significant cumulative impacts in the human environment.

This section considers the potential of the alternatives to cause cumulative impacts on the human environment. Not taking Federal action is expected to result in the cumulative impacts that arise from tolerating uncontrolled GFF 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 GFF programs could potentially be merged into one larger program area. When a GFF eradication program is combined with trapping and eradication actions in other California counties, a beneficial cumulative impact on the environment is expected, namely, less GFF damage to fruit and fewer chemical treatments because of the reduction in the GFF population.

The GFF program for Long Beach was examined for potential synergistic and cumulative environmental impacts. Program pesticides approved for use against GFF are also prescribed treatments for other *Bactrocera* spp. programs. As of May 18, 2015, there are seven active treatment sites in California targeted at *Bactrocera* species: specifically, at Oriental, guava and peach fruit fly infestations in Contra Costa, Los Angeles and Riverside Counties (CDFA, 2015f). At this time none of the active treatment areas overlaps one another, and none overlaps the proposed Long Beach treatment area. Due to the passage of time and the prevailing weather conditions in Los Angeles County, no chemical residues are believed to remain from *Bactrocera* spp. programs that could result in additive or synergistic chemical effects with previous program chemical applications. Use of program pesticides in a GFF program that overlaps another *Bactrocera* spp. program should be monitored and adjusted, where necessary, to minimize environmental impacts.

No significant environmental impacts are expected to result from proper implementation of this GFF eradication and control program. The differences in pesticide chemistries, targets for application, affected species and resources, and application timing between the GFF 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, 2015g)—

- Asian citrus psyllid in 16 counties including Los Angeles County;
- glassy-winged sharpshooter in 43 counties, not including Los Angeles County.

Care should be taken 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, 2014). Implementation of a GFF eradication program could lead to an increase in spinosad use and the possible overlap of APHIS and non-APHIS program treatments. The GFF treatment schedule will be adjusted in locations where another CDFA or APHIS program may have scheduled similar treatments, so as to avoid additive

chemical impacts. Additional programs in place at the time of preparation of this EA which may employ spinosad treatments (CDFA, 2015f and

2015g) that could combine with GFF spinosad treatments to have an additive impact have been designed to target the following—

- Mediterranean fruit fly in Riverside and Los Angeles County;
- Mexican fruit fly in Los Angeles County;
- European grapevine moth in 31 California counties, including Los Angeles County;
- light brown apple moth in portions of many California counties, including portions of Los Angeles County.

It is uncertain how pesticides may be used by private entities in the GFF program area. In terms of Federal and California State program activity, there are no significant cumulative impacts anticipated as a consequence of implementing the preferred alternative or its component treatment measures. The preferred alternative is designed for pesticide applications to avoid overlapping treatment areas and to prevent nontarget exposure until pesticide residues have weathered.

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

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

As discussed previously, additional actions may be implemented in this program, including additional quarantines and regulatory treatments. The anticipated use of these treatments is considered to pose minimal risk to the human environment, as determined in EIS1 and EIS2 (APHIS, 2001 and 2008), and the nontarget species and human health risk assessments (APHIS, 2014, 2003, 1999, 1998a, and 1998b).

IV. Agencies Consulted

California Department of Food and Agriculture
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Environmental and Risk Analysis Services
4700 River Road, Unit 149
Riverdale, MD 20737

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WEF—See Water Education Foundation

Appendix A. GFF Host Species Proposed for Federal Regulation

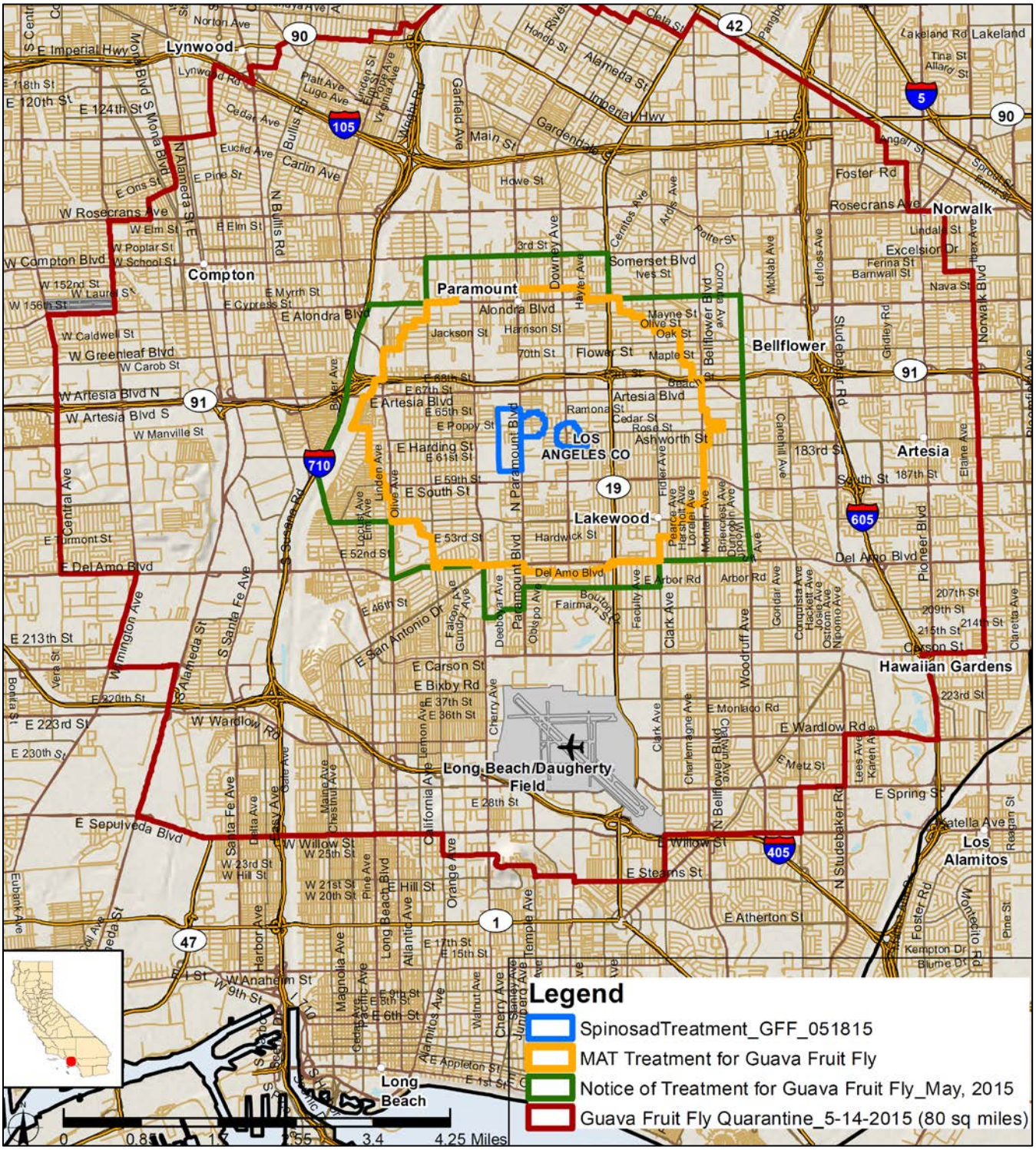
	Botanical Name	Common Name
1.	*Anacardium occidentale*	Cashew
2.	*Arecu catechu*	Areca palm
3.	*Artocarpus chama*	Chaplash
4.	*Artocarpus integer*	Chempedak
5.	*Averrhoa carambola*	Carambola
6.	*Baccaurea racemosa*	Menteng
7.	*Benincasa hispida*	Ash gourd
8.	*Bouea macrophylla*	Gandaria
9.	*Bouea oppositifolia*	Mariantree
10.	*Capparis sepiaria*	N/A
11.	*Capparis thorelii*	Cap thorel
12.	*Careya arborea*	Slow match tree
13.	*Careya sphaerica*	Kra doon
14.	*Carica papaya*	Papaya
15.	*Carissa carandas*	Bengal currants
16.	*Citrus maxima*	Pomelo
17.	*Citrus reticulate*	Mandarin
18.	*Clausena lansium*	Wampi
19.	*Coccinia grandis*	Ivy gourd
20.	*Coffea canephora*	Robusta coffee
21.	*Cucumis melo*	Melon
22.	*Dimocarpus longan*	Longan
23.	*Dipterocarpus obtusifolius*	Kok sat
24.	*Elaeocarpus hygrophilus*	Spanish plum
25.	*Flacourtia indica*	Governor’s plum
26.	*Flacourtia jangomas*	Indian plum
27.	*Flueggea virosa*	Chinese waterberry
28.	*Garcinia dulcis*	Eggtree
29.	*Garcinia xanthochymus*	Sour mangosteen
30.	*Heynea trijuga*	Buah pasat
31.	*Irvingia malayana*	Cha bok

	Botanical Name	Common Name
32.	*Knema angustifolia*	Horse blood
33.	*Lepisanthes fruticosa*	N/A
34.	*Luffa aegyptiaca*	Loofah
35.	*Madhuca longifolia*	Moatree
36.	*Maerua siamensis*	N/A
37.	*Malpighia emarginata*	Barbados cherry
38.	*Malpighia glabra*	Acerola
39.	*Mangifera indica*	Mango
40.	*Manilkara zapota*	Sapote
41.	*Mimusops elengi*	Spanish cherry
42.	*Muntingia calabura*	Calabur tree
43.	*Musa x paradisiaca*	Banana
44.	*Olax scandens*	Namchai Khrai
45.	*Opuntia monacantha*	Drooping prickly pear
46.	*Phyllanthus acidus*	Indian gooseberry
47.	*Polyalthia longifolia*	Cemetery tree
48.	*Prunus avium*	Sweet cherry
49.	*Prunus cerasus*	Dwarf cherry
50.	*Prunus persica*	Peach, nectarine
51.	*Prunus salicina*	Asian plum
52.	*Psidium guajava*	Guava
53.	*Sandoricum koetjape*	Red santol
54.	*Schoepfia fragrans*	Xiang fu mu
55.	*Spondias dulcis*	Golden apple
56.	*Spondias pinnata*	Hog plum
57.	*Strychnos potatorum*	Clearing nut tree
58.	*Syzygium aqueum*	Water apple
59.	*Syzygium borneense*	Kelat
60.	*Syzygium cumini*	Java plum
61.	*Syzygium jambos*	Rose apple
62.	*Syzygium malaccense*	Malay apple
63.	*Syzygium nervosum*	Daly River satin ash
64.	*Syzygium samarangense*	Java apple
65.	*Terminalia bellirica*	Beach almond
66.	*Terminalia catappa*	Tropical almond

	Botanical Name	Common Name
67.	*Trichosanthes costata*	Ribbed orange gourd
68.	*Trichosanthes cucumerina*	Serpent gourd
69.	*Vitis vinifera*	Common grapevine
70.	*Ziziphus jujube*	Chinese jujube
71.	*Ziziphus mauritiana*	Chinese apple
72.	*Ziziphus nummularia*	Jujube
73.	*Ziziphus oenoplia*	Bidara letek

(Source: J. Stewart to A. Shalom, pers. comm., 27 May 2015 8:52 AM)

Appendix B. Proposed GFF Program in Los Angeles County, California—May 14–18, 2015



(Source: USDA APHIS PPQ)

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

The following resources were used by USDA-APHIS-ERAS 15–18 May 2015.

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
- **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/
- **Native American Areas:** http://viewer.nationalmap.gov/
- **Threatened and Endangered Species:** http://www.dfg.ca.gov/biogeodata/cnddb/