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Mexican Fruit Fly Cooperative Eradication Program

Webb County, Texas

Environmental Assessment
June 2016

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Appendix A. Webb County Mexfly Quarantined Area, Texas—as of June 7, 2016

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I. Need for the Proposal

The Mexican fruit fly (Mexfly), *Anastrepha ludens* (Loew), is native to central Mexico and is a major pest capable of devastating crops throughout many parts of the Western Hemisphere. Mexfly has been introduced into the United States repeatedly since its first detection in Texas in 1927 (NAPIS, n.d.). Successful eradication programs have prevented Mexfly from becoming an established pest in the conterminous United States.

Adult Mexflies are long lived (up to 11 months), highly fertile, strong fliers, and highly mobile (UFL, 2012). Because Mexfly can damage over 50 species of host plants, a wide range of commercial crops and dooryard production in the United States would suffer if Mexfly populations became established. Fruit infested by Mexfly may be unfit to eat because larvae tunnel through the fleshy part of the fruit damaging it, and subjecting it to decay from microscopic organisms (CDFA, n.d.).

In June 2016, a new Mexfly outbreak was confirmed in Laredo, Texas (APHIS**,** 2016a and 2016b). Between June 3 and June 6, mature male, female, and larval Mexflies were detected on citrus hosts in a residential area of the city. As a result of these finds, the Laredo Mexfly Quarantined Area[1] was established: 56.5-square miles that contain commercial, municipal, and residential properties in a developed area of western Webb County (see map in appendix A). There are no acres of commercial citrus inside of the current Laredo program area. The nearest commercial citrus production is in eastern Hidalgo County, Texas, approximately 140 miles away. Commercial citrus harvest in the Lower Rio Grande Valley (LRGV) is complete for 2016.

APHIS and the Texas Department of Agriculture (TDA) are proposing a cooperative program to eradicate the Mexfly infestation and prevent the spread of Mexfly to noninfested areas of the United States. APHIS' authority for cooperation in the program is the Plant Protection Act (Title 4 of the Agricultural Risk Protection Act of 2000), which authorizes the Secretary of Agriculture to carry out operations to eradicate insect pests, and to use emergency measures to prevent the dissemination of plant pests new to, or not widely distributed throughout, the United States.

Working cooperatively with States and territories, APHIS identifies and eradicates Mexfly infestations. APHIS has cooperated with the California, Florida, Puerto Rico, and Texas Departments of Agriculture on fruit fly

[1] For the purposes of this document, and unless specified otherwise in the text, the terms "quarantined area" and "program area" signify the same place. A core area is where program chemical treatments may be applied.

eradication programs since 1984. To date, every fruit fly population targeted by APHIS' cooperative programs was successfully eradicated.

The State of Texas initiates *Anastrepha* spp. delimitation and eradication programs in locations where the types and number of detections are not yet triggering quarantine regulatory actions. Delimitation and eradication programs try to eliminate fruit fly infestations before reaching a quarantine threshold and imposing regulatory quarantines. Following Texas program protocols for Mexfly depopulation, aerial releases of sterile Mexflies continue year-round at a rate upwards of 500 flies per acre in designated at-risk counties; Webb County is not currently on this list. Monitoring for Mexfly is ongoing in susceptible agricultural regions of Texas.

APHIS and its cooperating partners have discussed and comprehensively analyzed alternatives for Mexfly eradication since 1984. APHIS first evaluated the environmental impacts of fruit fly control technologies in the *Fruit Fly Cooperative Control Program, Final Environmental Impact Statement—2001* (EIS1) (APHIS, 2001). APHIS reexamined its findings and introduced an additional tool for eradication in the *Use of Genetically Engineered Fruit Fly and Pink Bollworm in APHIS Plant Pest Control Programs, Final Environmental Impact Statement—2008* (EIS2) (APHIS, 2008). Both EIS1 and EIS2 consider fruit fly risks and mitigations at the programmatic level. This case-specific environmental assessment (EA) incorporates the findings of EIS1 and EIS2 by reference.

This EA analyzes consequences of implementing alternatives considered for Mexfly eradication, and analyzes, from a site-specific perspective, environmental and socio-economic issues relevant to this particular program. The eradication measures being considered for this program were discussed and comprehensively analyzed within APHIS' fruit fly chemical risk assessments (APHIS, 2014, 2003, 1999, 1998a, and 1998b). These documents also 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.

Mexfly outbreaks have occurred repeatedly in southern Texas due to the proximity of the infested areas to Mexico. Mexfly eradication programs are currently active in neighboring Zapata County and in the LRGV (APHIS, 2016c and 2016d). Mexfly-host plant species are cultivated by homeowners in Webb County and grown commercially in the LRGV, which increases potential impacts to the human environment should the Mexfly infestation spread beyond the Laredo program area. The potential environmental impacts of a Mexfly program in Webb County will be considered in this EA.

II. Alternatives

Alternatives considered for this proposed program include: (A) no Federal action, (B) quarantine and commodity certification, and (C) the preferred alternative, eradication using an integrated pest management (IPM) approach. Component techniques of alternative C include the use of regulatory controls, high density trapping, host larval survey, and chemical and biological control (sterile insect technique (SIT)) to facilitate the timely elimination of the current Mexfly infestation. These alternatives and their component techniques were discussed and comprehensively analyzed within EIS1 and EIS2 (APHIS, 2001 and 2008), and are incorporated by reference and summarized within this EA.

A. No Action

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

"No treatment" might be the only reasonable alternative for some sensitive sites. In such cases, lack of treatment could lead to a continuing and expanding infestation. An expansion of the infestation would likely result in substantial economic losses to growers in the United States, as well as the loss of U.S. export agricultural markets.

Under the no action alternative, APHIS would continue cooperative practices to support the TDA detection trapping program and research. (For details about the Texas State program to control Mexfly, please use the following link: Texas Mexfly program information.)

B. Quarantine and Commodity Certification

This alternative combines a Federal quarantine with commodity treatment and certification, as stipulated under Title 7 of the Code of Federal Regulations (CFR) § 301.32. Regulated commodities harvested within the quarantine area would not be allowed to move unless treated with prescribed applications and certified for movement outside the area. For a large infestation, intensive quarantine enforcement activities could be necessary, including safeguarding of local fruit stands, mandatory baggage inspection at airports, and judicious use of road patrols and regulatory checks. The quarantine actions of this alternative are designed to reduce

Mexfly movement outside treated areas, and reduce human-mediated transport of Mexfly in host plant materials to areas outside the quarantined area; however, the infestation could remain established within the quarantine boundaries. Any Mexfly eradication efforts would be managed by, and wholly under the control of, TDA.

Interstate movement of regulated commodities would require the issuance of a certificate, or limited permit, contingent upon commodity treatment or the grower or shipper complying with specific conditions designed to minimize pest risk and prevent the spread of Mexfly. Eradication methods that may be used in this alternative include (1) regulatory chemicals, (2) cold treatment, (3) vapor heat treatment, and (4) irradiation treatment. Regulatory chemical treatments may include fumigation with methyl bromide (MB), and bait spray with a mixture of protein hydrolysate (a food bait) and spinosad. (Refer to EIS1 (APHIS, 2001) for more detailed information about these chemicals and their uses.) Cold treatment, vapor heat treatment, or irradiation treatment of certain produce, as a requirement for certification and shipping, must be done in facilities that are inspected and approved by APHIS.

C. Eradication Using an IPM Approach (Preferred Alternative)

APHIS' preferred alternative for the location Mexfly program is eradication using an IPM approach. This alternative combines quarantine and commodity certification with eradication treatments, and is designed to be biologically effective while minimizing impacts to the environment, public intrusiveness, and program operating costs (TDA, 2016a). Successful eradication of a Mexfly infestation in the LRGV, using a similar IPM strategy, was declared in December 2015 (APHIS, 2015).

The APHIS/TDA Mexfly eradication program relies primarily on surveillance, bait sprays, and SIT (TDA, 2016a). Currently, all Mexfly SIT resources are being used in the LRGV—consequently, SIT is not planned for Webb County (APHIS 2016b). Eradication efforts for the Laredo Mexfly program may include any or all of the following:

- no action,
- regulatory quarantine treatment and movement control of host materials and regulated articles,
- host survey for evidence of breeding Mexfly populations,
- host removal,

- eradication chemical applications, and
- mass trapping to delimit the infestation and monitor post-treatment Mexfly populations.

Program areas for Mexfly infestations are centered on Mexfly detection sites. Program surveillance, quarantine, and treatment boundaries may be expanded to include other properties if additional adult flies or life stages are found.

APHIS' cooperative programs to eradicate Mexfly infestations in Texas use established procedures and treatments designed with the species' life stages in mind:

1. Delimitation

Multi-lure traps with female attractants will be used to delimit the infestation, and help determine the efficacy of treatments. To do this, traps are placed in varying densities inside the core and buffer areas surrounding Mexfly detection sites (APHIS, 2016b). All monitoring traps will be serviced for a period equal to three Mexfly life cycles beyond the date of the last fly detection. Fruit of host plants will be sampled for the presence of eggs and larvae in a 200-meter radius around each detection site.

2. Treatment

Confirmation of a breeding Mexfly population leads to application of a targeted, ground-based foliar bait treatment to host trees and plants within a 500-meter radius of each find site. Proposed treatments are highly localized sprays consisting of an organic formulation of spinosad (pesticide) and protein hydrolysate, a food bait. Spinosad is relatively nontoxic to mammals and beneficial arthropods; it is certified organic and has approved uses for the control of certain pests of agriculture, livestock, pets, and humans (DeAngelis, 2004). Spinosad applications in Texas occur at 7- to 10-day intervals for three life cycles (APHIS, 2010).

Malathion (an alternate to spinosad) has not been used for APHIS fruit fly programs in Texas in over 10 years; its use is not planned for the Webb County program. Malathion is a regulatory quarantine treatment that APHIS allows growers to use in order to permit movement of their produce. Any activity or application that allows growers to apply a control measure to permit the movement of their produce must be analyzed in the EA of the program. Even though the Laredo Mexfly program avoids using malathion, private growers may opt to use that chemical on their individual properties.

Protein hydrolysate is a common attractant used in fruit fly treatments, increasing the efficacy of chemical applications, and reducing the area of pesticide treatments needed for control (Prokopy et al., 1992). Pest fruit flies are attracted to the protein hydrolysate, which can be derived from

plants or yeast, where they then receive a lethal dose of the pesticide that is mixed with the attractant.

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

A quarantine boundary will be established to ensure any host material that leaves the program area is free of Mexfly. Host material may be treated in enclosed areas or containers by cold treatment, vapor heat treatment, irradiation, or fumigation with MB. Should the Mexfly quarantine spread to federally protected historical sites, wilderness, or tribal lands, program treatments will be restricted to those approved for the type of site in question.

Growers will be able to move their harvested fruit out of the quarantined area, under a limited permit, to enclosed facilities for processing into juice or for packing, after the fruit receives APHIS-approved MB treatment in the field or at the packing shed. Growers of host fruits may also treat their production areas using approved program treatments (field and/or premise treatment) and, under compliance agreement, have crops certified for movement to packing sheds.

Before taking action, program officials are to inform the public and impacted industry via press releases, meetings, and other forms of communication appropriate for the recipients. Residents whose property will be treated, or whose fruit will be removed, are to be notified at least 48 hours in advance. Notification letters will be sent to trading partners as they are identified. Given the potential impacts to commercial production, grove owners, packing sheds, nurseries, vendors, and other industry operations handling Mexfly-host material will be notified of the Mexfly quarantine location and treatment schedule.

For more detailed information regarding the alternatives considered for Mexfly 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 Mexfly control. The site-specific characteristics of this Mexfly program area were considered with respect to the potential of the

preferred alternative to affect human health, nontarget species (including threatened and endangered species), and environmental quality. Potentially sensitive sites were identified, considered, and accommodated through special selection of eradication methods and use of specific mitigation measures. APHIS will conduct any necessary additional environmental analyses if Mexfly detections lead to an expansion of the program boundary.

A. No Action

Lack of Federal action would place the burden of eradication on the State of Texas. It is reasonable to expect that Mexfly populations would continue to expand in number and area, leading to increased quarantine efforts. Any failure of those efforts could lead to the establishment of this pest within the conterminous United States. If eradication attempts are unsuccessful, APHIS expects substantial economic losses to growers in the United States. Crop loss is likely to lead to commodity scarcity, higher costs for U.S. consumers, and the temporary or permanent loss of valuable U.S. export markets.

B. Quarantine and Commodity Certification

The quarantine actions of this alternative are designed to reduce the human-mediated movement of Mexfly by preventing the transportation of host-plant materials beyond the quarantine boundary. A resident Mexfly population would be expected to remain within the quarantine boundary. Any failure in quarantine actions could lead to Mexfly establishment outside the program area. The commodity certification requirement would create a necessary but new layer of ongoing governmental presence in the marketplace. This situation could create inspection jobs, however, would restrict trade until the produce was inspected and certified for sale. Host plants would likely cease being grown for domestic use as landowners shifted to non-Mexfly host plants.

C. Eradication Using an IPM Approach (Preferred Alternative)

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

- no action,

- regulatory quarantine treatment and movement control of host materials and regulated articles,
- host survey for evidence of breeding Mexflies,
- host removal,
- eradication chemical applications (foliar bait spray), and
- mass trapping using pheromone lures or food bait as an attractant.

Pheromone lures present little to no risk to human health or to the general environment, based on their low toxicity in animal testing, high target specificity, and low exposure to humans and the environment (Reilly, 2003). Review of the treatment protocols by APHIS indicates the chemical formulations used as pheromone lures in Mexfly program traps are unlikely to result in adverse environmental or human health risks (APHIS, 2014, 2003, 1999, 1998a and 1998b). Therefore, the discussion in this section will focus on the other eradication measures of the preferred alternative.

1. Affected Environment

a. Land Characteristics and Demographics

Mexfly infestions in Texas that resulted in cooperative eradication programs in 2015 and 2016 include portions of Cameron, Hidalgo, Willacy, and Zapata Counties (APHIS, 2016c and 2016d). The Laredo Mexfly quarantine boundary is currently about 42 miles north of the Zapata Mexfly quarantine (the nearest active Mexfly cooperative eradication program). There is little development in the hilly brush region between Zapata and Laredo other than melon farms, ranches, and natural gas wells (Chapa, 2013). The Laredo Mexfly detections confirmed in June 2016 were collected from three species of citrus hosts on urban residential property, near multiple international ports of entry and about 140 miles from the nearest commercial citrus production in Texas (APHIS, 2016b).

Webb County is the sixth largest county in Texas, covering over 3,370 square miles—14 square miles of which is water (WVG, 2016). It is bordered on the west by the Rio Grande and Mexico, and on the north, east, and south by these counties: Maverick, Dimmit, La Salle, McMullen, Duval, Jim Hogg, and Zapata (see figure 1). Webb County comprises the Laredo, Texas Metropolitan Statistical Area (WVG, 2016), and had an estimated population of 269,721 in 2015. Laredo is the county seat, and reported a population of 236,091 in 2010 (USCB, 2016). Region M, which includes Webb County and stretches along the Rio Grande (see figure 2), has the highest regional growth rate and is expected to more than double its population between 2020 and 2070 (TWDB, 2016b).

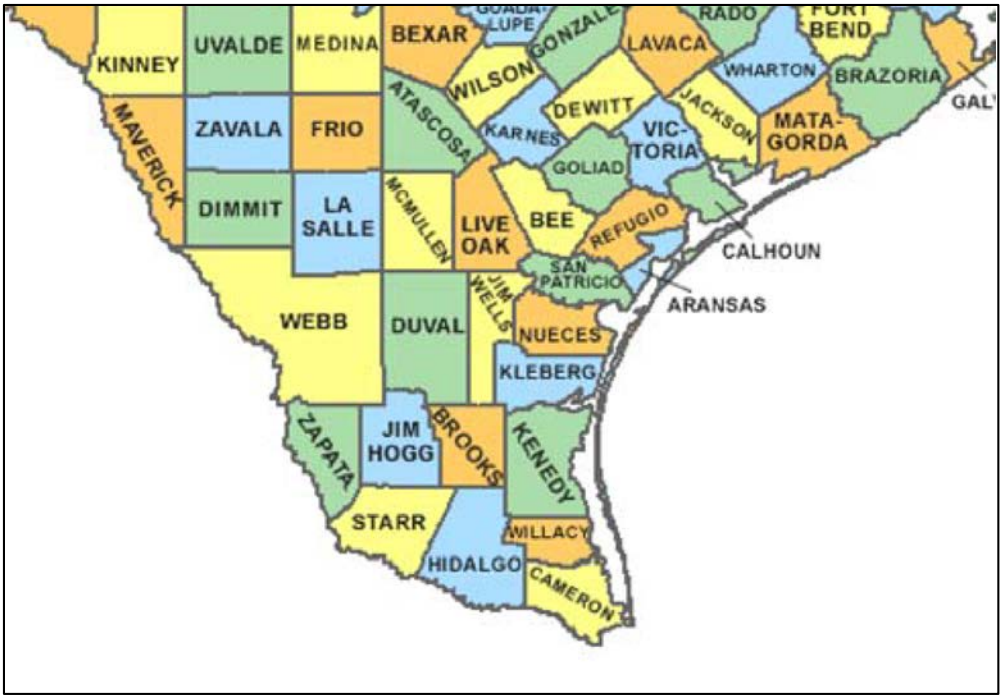

Figure 1. Counties in central-southern Texas.
(Source: http://www.digital-topo-maps.com/county-map/texas-county-map.gif)

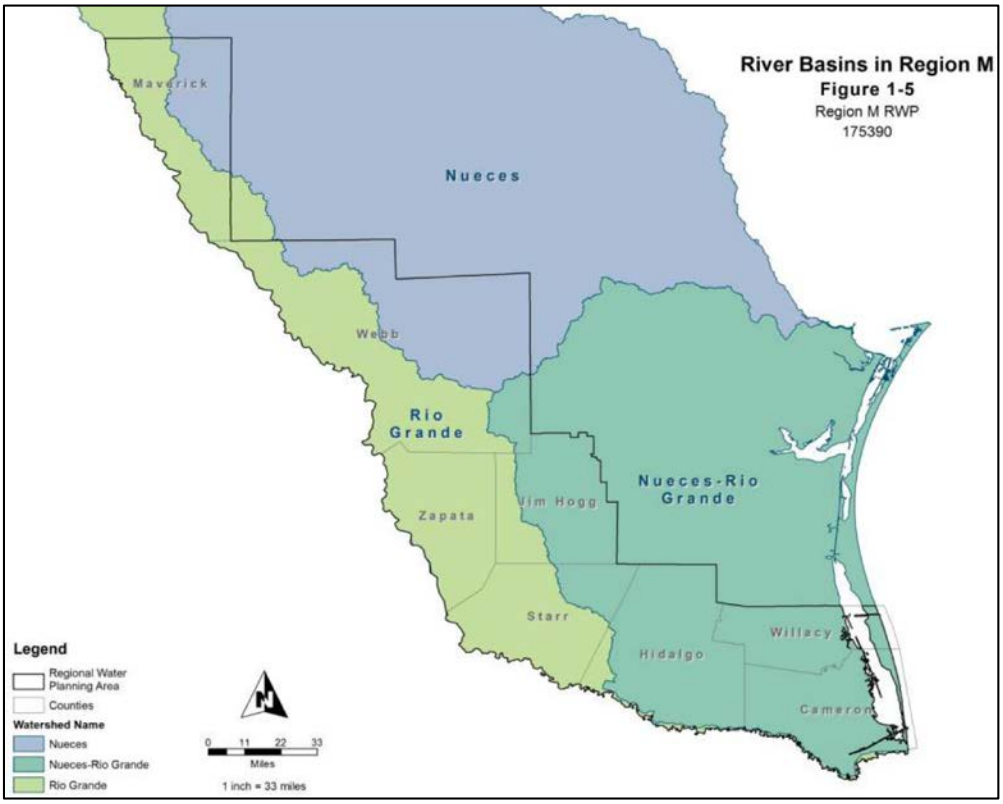

Figure 2. Regional water planning area M.
(Source: TWDB, 2016a)

Webb County is comprised of generally flat to rolling terrain covered with grasses, mesquite, thorny shrubs, and cacti. Elevation ranges from 400 to 700 feet, and soils are primarily clayey and loamy. The Northern and Eastern sections of the county are drained by creeks that flow north and eventually enter the Nueces River; the Southern and Western parts of the county are drained by the Rio Grande. Mineral resources include caliche, clay, uranium, oil, natural gas, and zeolite (Leffler and Long, 2016). Hunting and birdwatching are world-renowned in Webb County (Issuu.com, 2013).

The city of Laredo is located on the north bank of the Rio Grande, on the border between Texas and Mexico. Laredo's climate is generally sunny with mild winters; temperatures range from 68 ºF in January to over 100 ºF in August. Local land use in the Mexfly-affected portion of the city is mainly residential, with scattered urban and light industrial districts.

The economy of Laredo is based on international trade and transportation; it is the largest inland port in the United States (Issuu.com, 2013). Each year billions of dollars worth of goods roll across the border in 18-wheelers and rail cars (Chapa, 2013). Tourism is also an important industry (VisitLaredo.com, 2016). Laredo is the U.S. principal port of entry into Mexico, connecting Interstate Route 35 with the Pan American Highway that stretches 19,000 miles from Canada into Central and South America. The current Mexfly program area contains three international ports (2 highway and 1 rail). The program area is transsected by Interstate Highway 35, U.S. Highways 59 and 83, and Texas Highway 359. Although the current infestation is in a highly developed location, there are numerous potentially sensitive sites located within 15 miles of the Mexfly detections. (For more information see table 1.)

a. Water Resources

Webb County crosses six Texas watersheds: Upper Nueces, Middle Nueces, Baffin Bay, Palo Blanco, San Ambrosia-Santa Isabel, and International Falcon Reservoir (EPA, 2012). The Rio Grande forms the county's western border with Mexico, and is the county's main source of potable and irrigation water. Laredo has several man-made reservoirs: Lake Casa Blanca, San Ildefonso Creek Lake, and Sombrerillito Creek Lake. The six major creeks in Laredo are Chacon Creek, San Ildefonso Creek, San Ygnacio Creek, Santa Isabel Creek, Sombrerillito Creek, and Zacate Creek, all of which drain into the Rio Grande. The Mexfly program area in Laredo occupies part of the Rio Grande Basin, one of eight designated coastal basins in Texas (see figure 2).

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

Designated Land Use	Distance Rounded Off to Nearest Tenth of a Mile
City, State, and Federal Lands	Within quarantine • Lake Casa Blanca International State Park • Lake Casa Blanca Golf Course • Laredo Country Club Within treatment area • La Ladrillera Park • Memorial Gardens of Laredo
Colonias	Within quarantine • Larga Vista Colonia • Old Milwaukee West • Old Milwaukee East None within treatment area
Mexico	From core of nearest treatment area, 0.5
Nearest Historic Sites	In Webb County** • 9 Federally Registered Historic Places • 3 State Historic cemeteries • 1 historic museum
Nearest International Ports	Within program area • Del Rio/Amistad Dam • Eagle Pass • Texas Mexican Railway International Bridge Within quarantine • Laredo International Airport, 1.4 Within Laredo, TX • Colombia Bridge • Juarez-Lincoln Bridge • Puente de las Americas Bridge • World Trade Bridge Seaports • Port Aransas, 148.0 • Port Mansfield, 168.0 • Port Isabel, 197.0
Nearest Native American Reservation	• Kickapoo Federal Reservation, 94.0 • Ceded lands: Comanche; Kiowa
Organic Production, Nurseries, Farmers Markets	Within quarantine • 2 farmers markerts (1 borders treatment area) • 6 nurseries and garden centers No organic production within program area
Schools and Academic Institutions	• 29 within current quarantine • 35 within treatment areas

* See appendix B for data sources. ** Source: THC, 2015.

Texas received heavy rains in early June, keeping the State drought-free (Bathke and Svoboda, 2016). However, in southern Texas invasive aquatic weeds, international treaty issues, point-source and runoff pollution, and increased public demand continue to threaten long-term water availability (LRGVDC, 2009).

The majority of the Rio Grande water available to the region comes from supplies stored in the international Amistad and Falcon Reservoir System, owned by the United States and Mexico, and administered by the International Water and Boundary Commission. The Texas Commission on Environmental Quality appoints a regional "watermaster" to oversee and continuously monitor streamflows, reservoir levels, and water use. Water distribution in the middle and lower Rio Grande basin is prioritized by the purpose of its use, with municipal and industrial rights having priority over irrigation rights during times of drought. The water-use category with the largest demand in Region M is irrigation, followed by municipal (TWDB, 2016a and 2016b). (See table 2 for information on water resources as they relate to the Laredo Mexfly program area.)

2. Human Health

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

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

Malathion is an organophosphate insecticide that targets the nervous system and acts by inhibiting acetylcholinesterase. In humans and other mammals, malathion is metabolized to its oxon (malaoxon), a more potent cholinesterase inhibitor than malathion. Carboxylesterases and other metabolic processes detoxify malathion and malaoxon to polar, and water-soluble compounds that are excreted. Mammals are less sensitive to the effects of malathion than insects due to increased carboxylesterase compared resulting in less accumulation of malaoxon. Malathion has low acute toxicity via oral, dermal, and inhalation exposure routes. EPA classifies malathion as having "suggestive evidence of carcinogenicity, but not sufficient to assess human carcinogenic potential" (EPA, 2006). This indicates that any carcinogenic potential of malathion is so low that it cannot be quantified based upon the weight of evidence. At high doses, human health effects from malathion may include headache, nausea, vomiting, abdominal cramps, diarrhea, blurred vision, muscle weakness

and twitching (ATSDR, 2003). However, high dose exposures are not expected from program applications of malathion. Malathion may have synergistic effects when used with other organophosphate or carbamate pesticides (USFS, 2008). However, other organophosphate or carbamate pesticides are not proposed to be used in the Mexfly eradication program.

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

Type of Resource	Distance Rounded Off to Nearest Tenth of a Mile
Impaired Waters within 15 Miles	Within quarantine • TX-2304-02, 2.6 Within treatment area • TX-2304-03, 0.5
Water Bodies	Within quarantine • Zacata Creek, 1.0 • Lake Casa Blanca, 1.1 • Ugarte Tank, 2.4 • Bruni Lake, 3.2 Within treatment area • Rio Grande River, 0.5 • Chacon Creek 0.5
Watersheds near Laredo	Within quarantine • HUC12 ID 1308000020702 • HUC12 ID 130800020705 • HUC12 ID 130800020704 Within treatment area • HUC12 ID 1308000020702
Wetlands	Within quarantine • Open water, 991.2 acres • Woody wetlands, 190.6 acres • Herbaceous wetlands, 32.9 acres Within treatment area • Open water, 12.7 acres • Woody wetlands, 4.4 acres • Herbaceous wetlands, 1.3 acres

* See appendix B for data sources.

Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. The Mexfly eradication program will employ ground-based targeted applications of spinosad or malathion combined with protein bait. Workers who mix, load and apply pesticides and members of the public who live in or visit the Mexfly eradication program area, are the potentially exposed human populations. Proper use of personal protective equipment and engineering controls limit the exposure of program workers.

Exposure to the general public is not expected based on the targeted foliar applications and the program mitigation measures. Commercial

applications, should these become necessary, will be applied to properties owned by commercial growers and producers where exposure to the general public is unlikely. Residential neighborhoods and other areas of public traffic within the Mexfly eradication program receive only targeted foliar applications.

Another mitigation measure designed to minimize exposure of humans to program pesticides is the requirement for public notification. Information concerning the Mexfly eradication project will be shared via press releases and media announcements to the general public. Either the county agricultural commissioner or public information officer will serve as the primary contact to the media. Any resident with property to be treated will be contacted directly or notified in writing at least 48 hours prior to treatment. Following the treatment, notices will be left with homeowners detailing precautions to take and safe intervals of time that should elapse before harvesting fruit on the property.

Spinosad bait applications in Texas occur at 7- to 10-day intervals for three life cycles. Malathion bait sprays in Mexico occur at 10- to 14-day intervals for three life cycles. Applications of malathion bait sprays in commercial or production orchards in Texas are conducted by a private contractor hired by industry, and occur at 10- to 14-day intervals for three life cycles (APHIS, 2010). The potential for exposure to the general public after pesticide application is low because spinosad and malathion are not persistent in the environment with a half-life of 2.0 to 11.7 days (spinosad) and 1 to 6 days (malathion) on foliage. An additional summary of the environmental fate of the pesticides is discussed in the Environmental Quality section of this document (III.C.5).

If spinosad bait and malathion bait applications are restricted to target surfaces and made in accordance with EPA label instructions, effects to human health and the environment are expected to be incrementally negligible. The use of protein hydrolysate as an attractant in the Mexfly program is also expected to present a low risk to human health. The attractant has low toxicity and its ground-based, targeted method of application results in a low probability of exposure and risk to workers and the general public.

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

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

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

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

Trap placement and chemical applications may be rescheduled if rainfall or strong winds are forecast for the program area. Site inspections will continue to ensure existing program treatments are not likely to affect humans. The destruction or relocation of traps and treatments due to weather events is unlikely to result in adverse impacts to the human environment because the potential pesticide toxicity is reduced by dilution during the storm's water and air movement.

Of the three alternatives considered, a well-coordinated eradication program using IPM technologies results in the least use of chemical pesticides and minimizes their potential to adversely affect human health. Neither the no action alternative nor the quarantine/commodity certification alternative is expected to eliminate Mexfly as readily or as effectively as the preferred alternative. Implementation of these alternatives over a protracted period would likely result in 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 United States Code (U.S.C.) §§ 470 et seq.), requires Federal agencies to consider the impact of their proposed actions on properties included in, or eligible for inclusion in, the National Register of Historic Places (36 CFR §§ 63 and 800). APHIS identified nine locations listed on the National Register within Webb County. The historic places are all buildings with surrounding landscaping that may include Mexfly host plants. Only three of the 30 cemeteries in Webb County are listed as Texas Historical Cemeteries (THC, 2015). APHIS' actions will not disturb the ground or any facilities, the deployed chemicals do not affect building materials, and the deployed chemicals rapidly degrade in the environment. For these reasons, APHIS activities considered in this assessment are not likely to affect historic properties. APHIS may hand-pick fruit from surrounding landscape plants, and place bait stations outside of the historic site's property whenever possible.

APHIS is initiating consultation with the State Historic Preservation Office (SHPO) for Texas. The Mexfly project area under consideration includes Webb County. In February 2014, SHPO's evaluation of nearby counties concurred with APHIS' finding that historic properties would not be affected by the proposed action.

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

Federal agencies identify and address the disproportionately high and adverse human health or environmental effects of its proposed activities, as described in Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. APHIS engages locally impacted people in collaborative decisions on trap placement whenever possible, and considers the potential environmental impacts of implementing the action alternatives on minority and/or low-income communities, tribal interactions, and historical and culturally sensitive sites in the program area.

"Colonia" is a term used in the Southwestern States to describe subdivisions where developers divide the land into small lots and offer affordable housing to low-income families. Purchase of these lots occurs through a contract for a deed with a low down payment and low monthly payments. The title for the house is issued only after the homeowners make the final payment (TSOS, 2016a). Residents build the housing in these locations over time as they can afford materials. Consequently, many residences lack connections to sewers or running water; residents may not be able to access water lines because their homes do not meet county building codes. Webb County has 64 listed colonias (TSOS, 2016a and 2016b), and the quarantine area appears to have 3 recognized colonias (Larga Vista Colonia, Old Milwaukee East Colonia, and Old Milwaukee West Colonia), however, others may exist (see appendix B for data sources).

The population identifying as Hispanic or Latino averages about 96 percent in Webb County; approximately 91 percent do not speak English at home,

and about 35 percent of the adult population has not graduated from high school (USCB, 2016). The median household income in Webb County averages $38,679 and, at 32.3 percent, the population of this county below the poverty level is nearly twice the national average (17.2 percent) (USCB, 2016). To meet the needs of these low-income and minority groups, APHIS will provide advance notice of program activities and potential exposure hazards to members of colonias, other non-English-speaking populations, and people in areas that generally lack access to news media. Providing notice ensures people avoid exposure during bait trap placement and maintenance. Any exposure of low-income or minority individuals to applied products is negligible based on the program's application methods and the product formulations.

Federal agencies comply with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. The preferred alternative does not pose any disproportionate adverse effects to children because maintenance of traps and any pesticide applications would not occur when children are present in the immediate area. The intermittent presence of children at shelters, playgrounds, parks and picnic areas, religious centers, public/private campgrounds and trailer parks, athletic fields, bus depots, and outdoor community facilities means they are likely to be at locations where bait traps are in use; however, the placement of these traps is likely to be far above their reach. There are three school districts in Webb County. Approximately 35 schools or institutions are within the treatment area, and an additional 29 schools within the quarantine area (see appendix B for data sources). APHIS will maintain traps and apply any pesticide applications only when children are not present in the immediate area. The surrounding landscape plants may have fruit removed by handpicking. Where possible, APHIS will not apply baits on school property. When pesticide applications are essential, APHIS would use either a bait trap or backpack sprayer. Any exposure of children to applied products is negligible based on the program's application methods and the product formulations. The proposed program does not pose any highly disproportionate adverse effects to children, minority, or low-income populations because (1) these individuals are unlikely to be present when APHIS applies treatments or maintains bait traps, and (2) exposure to applied pesticides is negligible.

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, calls for agency communication and collaboration with tribal officials when proposed Federal actions have potential tribal implications. The Archaeological Resources Protection Act of 1979 (16 U.S.C. §§ 470aa-mm), secures the protection of archaeological resources and sites on public and tribal lands. Using the Native American Graves Protection and Repatriation Act Online Databases (NPS, 2016; 25 U.S.C. §§ 3001 et seq.), APHIS finds the Kickapoo Traditional Tribe of Texas has the nearest

Indian Reservation at 94 miles away in western Maverick County, and that the Comanche and Kiowa ceded lands in the area (NPS, 2016). APHIS met with the Kickapoo Tribe on February 4, 2013, to review the tribe's needs, interests, and concerns. During the discussion, the Tribal Administrator reiterated that the Kickapoo Tribe does not have any land holdings within the LRGV area (Duhaime, pers. comm., 01/30/2014). This situation does not appear to be changed. In addition, the proposed action will not disturb the ground, so it is unlikely to affect Native American sites or artifacts. For these reasons, program activities are unlikely to affect Native Americans.

APHIS considered the potential environmental impacts of implementing the action alternatives on minority and/or low-income communities, tribal interactions, and historical and culturally sensitive sites in the program area. A lack of Federal action could result in adverse economic and health impacts on affected producers and consumers, such as decreased harvests, higher consumer prices, loss of local employment, reduced nutritional options, loss of market share, compromised mental and physical health, loss of property, and so on. These indirect impacts may occur to a lesser extent under the quarantine and commodity certification alternative. APHIS does not anticipate these types of adverse effects as a result of carrying out the preferred alternative's surveillance activities, trapping, and program ground-based chemical applications.

4. Nontarget Species

Potential environmental impacts of alternative A (the no action alternative) or alternative B (quarantine and commodity certification) on nontarget species could include loss of animal and plant life and habitat from unregulated pesticide use by the public, or from Mexfly host damage. Under the preferred alternative, the principal concerns for nontarget species, including threatened and endangered species, relate to potential harm from the use of program pesticides. Paralleling human health risk, the risk to nontarget species is related to the pesticides' fate in the environment, their toxicity to the nontarget species, and their exposure to nontarget species.

Current program eradication activities in Webb County are limited to ground-based foliar applications of spinosad combined with protein hydrolysate bait that is applied to host plants to control invasive Mexfly populations. The spinosad bait treatments target Mexfly life stages on host plants in a manner that minimizes potential exposure and associated risks to nontarget species.

Protein hydrolysate is a common attractant used in fruit fly treatments, increasing the efficacy of chemical applications and reducing the area of pesticide treatments needed for control (Prokopy et al., 1992). Mexflies are attracted to the protein hydrolysate where they then receive a lethal dose of the pesticide (spinosad that is mixed with the attractant). Protein

hydrolysate alone is expected to have minimal impacts to environmental quality and nontarget species because of its low toxicity.

Malathion could be used by the program in a bait formulation should spinosad be unavailable during a pest emergency. Malathion is an organophosphate pesticide whose mode of toxic action is primarily through acetylcholinesterase inhibition (Klaassen et al., 1986; Smith, 1987). The toxicity of malathion is very slight to moderate for mammals and birds. For fish, the acute toxicity of malathion varies from moderately toxic to some species of fish to very highly toxic to other species (Beyers and Sikoski, 1994; Mayer and Ellersieck, 1986; USFS, 2008). Malathion is moderately to very highly toxic to most aquatic invertebrates on an acute basis, depending on the sensitivity of the species. Spinosad has low to moderate toxicity to wild mammals and birds. Spinosad toxicity to fish is moderate, while aquatic invertebrates are more sensitive in acute and chronic exposures. Toxicity to terrestrial invertebrates is variable; however, spinosad is considered highly toxic to honey bees. Risks to nontarget species from the use of either malathion or spinosad baits are anticipated to be negligible because the proposed use pattern (targeted, hand application of the bait) results in a low potential for exposure to most taxa. The bait applications attract only a small number of invertebrate species other than Mexfly. (Refer to EIS1 and EIS2 (APHIS, 2001, 2008) and the supporting nontarget risk assessments (APHIS, 2014, 2003, 1998b) for more information on risks to all classes of nontarget species.)

a. Migratory Birds

Unless permitted by regulation, the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–712) provides that it is unlawful to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird or any part, nest, or egg of any such bird.

Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, directs Federal agencies taking actions with a measurable negative effect on migratory bird populations to develop and implement a memorandum of understanding (MOU) with the U.S. Fish and Wildlife Service (FWS) which promotes the conservation of migratory bird populations. On August 2, 2012, an MOU between FWS and APHIS was signed to facilitate the implementation of this Executive order.

Hundreds of species of local and migratory birds occur in the Laredo area, including white-collared seedeater (*Sporophila torqueola*), scaled quail

(*Callipepla squamata*), gray hawk (*Buteo plagiatus*), Audubon's and Altamira orioles (*Icterus graduacauda* and *I. gularis*), green parakeet (*Psittacara holochlorus*), muscovy duck (*Cairina moschata*), red-billed pigeon (*Patagioenas flavirostris*), and clay-colored thrush (*Turdus grayi*) (RGISC, 2016). Migratory birds of conservation concern that may occur in the quarantine area in Webb County include Audubon's oriole (*I. graduacauda*), Bell's vireo (*Vireo bellii*), burrowing owl (*Athene cunicularia*), Cassin's sparrow (*Aimophila cassinii*), chestnut-collared longspur (*Calcarius ornatus*), curve-billed thrasher (*Toxostoma curvirostre*), dickcissel (*Spiza americana*), elf owl (*Micrathene whitneyi*), gull-billed tern (*Gelochelidon nilotica*), Harris's hawk (*Parabuteo unicinctus*), Harris's sparrow (*Zonotrichia querula*), hooded oriole (*Icterus cucullatus*), Hudsonian godwit (*Limosa haemastica*), lark bunting (*Calamospiza melanocorys*), least bittern (*Ixobrychus exilis*), least tern (*Sterna antillarum*), lesser yellowlegs (*Tringa flavipes*), loggerhead shrike (*Lanius ludovicianus*), mountain plover (*Charadrius montanus*), peregrine falcon (*Falco peregrinus*), red-billed pigeon (Patagioenas flavirostris), short-eared owl (*Asio flammeus*), sprague's pipit (*Anthus spragueii*), summer tanager (*Piranga rubra*), Swainson's hawk (*Buteo swainsoni*), varied bunting (*Passerina versicolor*), and verdin (*Auriparus flaviceps*) (IPaC, 2016).

APHIS evaluated the proposed Mexfly program in terms of potential impact on migratory avian species in the program area. Malathion is only slightly to moderately toxic to birds; spinosad's acute and chronic toxicity to birds is low (APHIS, 2014). The targeted application of the insecticide baits to Mexfly host plants within 500 meters of Mexfly detections, (usually in residential areas), and the short half-life of malathion on vegetation would result in limited to no exposure of birds to malathion. The localized and direct application of malathion and spinosad baits to host plants would not result in any impacts to food of birds. Birds would not be exposed to methyl bromide treatments.

FWS made recommendations for APHIS Mexfly programs regarding the protection of migratory birds (FWS, 2015). The FWS recommended that activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individual birds, nests, or eggs. If project activities must be conducted during this time, FWS recommends surveying for nests prior to commencing work. If a nest is found, if possible, FWS recommends a buffer of vegetation (≥ 50 feet) remain around the nest until young have fledged or the nest is abandoned.

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.

There are five federally listed species in Webb County, including ocelot (*Leopardus pardalis*), Gulf Coast jaguarundi (*Felis yagouaroundi*), least tern (*Sterna antillarum*), yellow-billed cuckoo (*Coccyzus americanus*), and ashy dogweed (*Thymophylla tephroleuca*). APHIS contacted FWS' Ecological Services Field Office in Corpus Christi, Texas, on June 13, 2016, regarding the proposed treatment. For the quarantine in the City of Laredo in Webb County, FWS reviewed a map of the area and indicated that there were no listed species or critical habitat in the current quarantine area (Fuentes-Capozello, pers. comm., 6/14/2016). In addition, the treatment areas where spinosad or malathion will be applied are on private property in dooryard fruit; no commercial fruit production occurs within the current quarantined area. Local land use is mainly commercial and residential, and is not habitat for listed species. Therefore, APHIS has determined that the proposed program will have no effect on listed species or critical habitat. Should the program area expand within Webb County or further outbreaks are detected that are not considered herein, APHIS will consult with FWS and other appropriate agencies, as necessary.

5. Environmental Qualilty

The principal environmental quality concerns are for the protection of air quality, water quality, and the minimization of the potential for environmental contamination. In relation to preserving environmental quality, program pesticides remain the major concern for the public and the program. Although program pesticide use is limited, especially in comparison to other agricultural pesticide use, the proposed action would result in a controlled release of chemicals into the environment. The fate of those chemicals varies with respect to the environmental component (air, water, or other substrate) and its characteristics (temperature, pH, dilution, etc.). The environmental fates of spinosad and MB are outlined below. (Refer to EIS1 and EIS2 (APHIS, 2001 and 2008) and the risk assessments (APHIS, 2014, 2003, 1999, 1998a and 1998b) for a more detailed consideration of program pesticides' environmental fates.)

- **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. Within a few weeks of application, effects from residues of individual treatments are no longer detectable in environmental substrates (APHIS, 2014; Kollman, 2003).

- **Malathion** is toxic to many nontarget species; it is used less widely than spinosad, and primarily by commercial growers on private property. Malathion is considered lower in toxicity and less persistent (1 to 25 days in soil) than other organophosphorus pesticides. In water, malathion has a half-life of approximately 1 week, and is more stable in acidic aquatic conditions. Malathion is soluble in water, and can be highly mobile in soil. Generally, degradation occurs rapidly (a half-life of less than 1 to nearly 9 days) (Gervais et al., 2009); application to foliage allows for exposure of residues to degradation from processes (e.g., photolysis), resulting in a reduced potential for significant movement to ground water. Malaoxon is an oxygen analogue of malathion, and it can be found either as an impurity in malathion products, or can be generated during the oxidation of malathion in air or soil. Malathion and malaoxon can be transported in air over large distances and elevations (Newhart, 2006).

- **Methyl bromide** (MB) fumigation will not be used as an eradication treatment, but may be employed as a regulatory treatment. MB volatilizes into air from soil and water, and is known to contribute to stratospheric ozone depletion. The volatilization half-life for MB from surface water ranges from 3.1 hours to 5 days. The degradation half-life of MB in water ranges from 20 to 38 days, depending on temperature and pH. Volatilization of MB from surface soil is rapid, with a half-life ranging from 0.2 to 0.5 day. The degradation half-life of MB in soil ranges from 31 to 55 days. MB has a low affinity to bind to soils, however, is not considered a major contaminant of ground water (NPIC, 2000). The small quantities of MB used to treat for Mexfly disperse when fumigation chambers are vented. (See section 6 of this chapter (III.C.6) regarding the potential cumulative impacts of MB 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, TDA will analyze the environmental setting, and establish and follow site-specific best management practices.

The prescribed method of spray application directly to host plants is designed to minimize drift and runoff. Mitigation measures will be applied to protect marine and freshwater resources. Personnel will maintain a

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

The alternatives (A) no Federal action, (B) quarantine and commodity certification, and (C) the preferred alternative, eradication using an IPM approach) were compared with respect to their potential to affect environmental quality. Risk to environmental quality is considered minimal. Again, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall, with minimal adverse impacts on environmental quality. The no action alternative and the quarantine and commodity certification alternative would likely result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts.

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

6. Cumulative Impacts

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

APHIS considered implementation of the preferred alternative in the context of, and in conjunction with, other pest insect eradication and quarantine projects in the Laredo program area (e.g., pink bollworm and cattle fever tick eradication efforts). These programs use pesticides with different chemistries. They target different pests, and are applied at different times. The combination of these different pesticide chemistries, targets for

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

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

At present, no Mexfly eradication zones overlap one another, and none overlaps the proposed Laredo treatment area. Use of program pesticides in a Mexfly program that overlaps with another *Anastrepha* spp. program are monitored and adjusted, where necessary, to minimize environmental impacts. During 2014, for example, infestations of West Indian fruit fly (*Anastrepha obliqua* (Macquart)) were detected in areas being treated for Mexfly. The eradication program protocols for West Indian fruit fly being the same as that for Mexfly, no additional chemical treatments were considered necessary. Due to the passage of time and the prevailing weather conditions in south Texas during 2015 and early 2016, no chemical residues are believed to remain from other cooperative Mexfly eradication programs that could result in additive or synergistic chemical effects with previous program chemical applications.

The Mexfly program for the Laredo program area was examined for potential synergistic and cumulative environmental impacts. APHIS considered the potential for pesticide exposure from the use of pesticides on adjacent properties and in residential and community gardens, as well as urban communities in close proximity to commercial cultivation of Mexfly-host plant species (Belson et al., 2003; Donnelly and Cizmas, 2007).

Malathion is a pesticide approved for use against Mexfly but is unlikely to be employed in program treatments. Malathion is also a regulatory treatment for the Texas cotton boll weevil eradication program. Uses of malathion by a Mexfly program within the Texas boll weevil quarantine (currently active in the counties of Brooks, Cameron, Hidalgo, Jim Hogg, Kenedy, Maverick, Starr, Webb, Willacy, and Zapata) should, therefore, be monitored and adjusted, where necessary, in order to minimize environmental impacts (TBWEF, 2016). Other treatments for potentially overlapping eradication programs in southern Texas target different arthropod species, and do not affect the same nontarget organisms (TDA, 2016c).

No significant environmental impacts are expected to result from proper implementation of this Mexfly eradication and control program. The differences in pesticide chemistries, targets for application, affected species and resources, and application timing between the Mexfly program and other pest control programs in Texas are not likely to create significant cumulative impacts in the human environment. No synergistic or cumulative impacts from pesticide applications are expected with the following active control programs (TDA, 2016c)—

- **Asian citrus psyllid:** Quarantine over the entire State; pesticide applications in the citrus-growing areas of eight counties, not including Webb.

- **Citrus greening:** Quarantine over six counties, not including Webb.

- **Exotic fruit fly species:** Mexfly programs in Cameron, Hidalgo, Willacy, and Zapata Counties.

Care should be taken, however, when multiple pest species in the same area are targeted for treatment using the same chemical. Spinosad, for example, has other labeled food and non-food uses and is currently used in a variety of pest control efforts, including the control of termites and European grapevine moth (APHIS, 2014). Implementation of a Mexfly eradication program could lead to an increase in spinosad use, and the possible overlap of APHIS and non-APHIS program treatments. The Mexfly treatment schedule will be adjusted in locations where another TDA or APHIS program may have scheduled similar treatments to avoid additive chemical impacts.

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

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

There were no residual impacts from previous Federal and non-Federal actions targeting fruit fly infestations in the State of Texas, 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 Mexfly cooperative eradication program.

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

IV. Agencies Consulted

State Historic Preservation Officer Texas
Texas Historical Commission
108 W. 16th Street
Austin, TX 78701

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

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

U.S. Fish and Wildlife Service
Ecological Services
c/o TAMU-CC,
6300 Ocean Drive, Unit 5837
Corpus Christi, TX 78412

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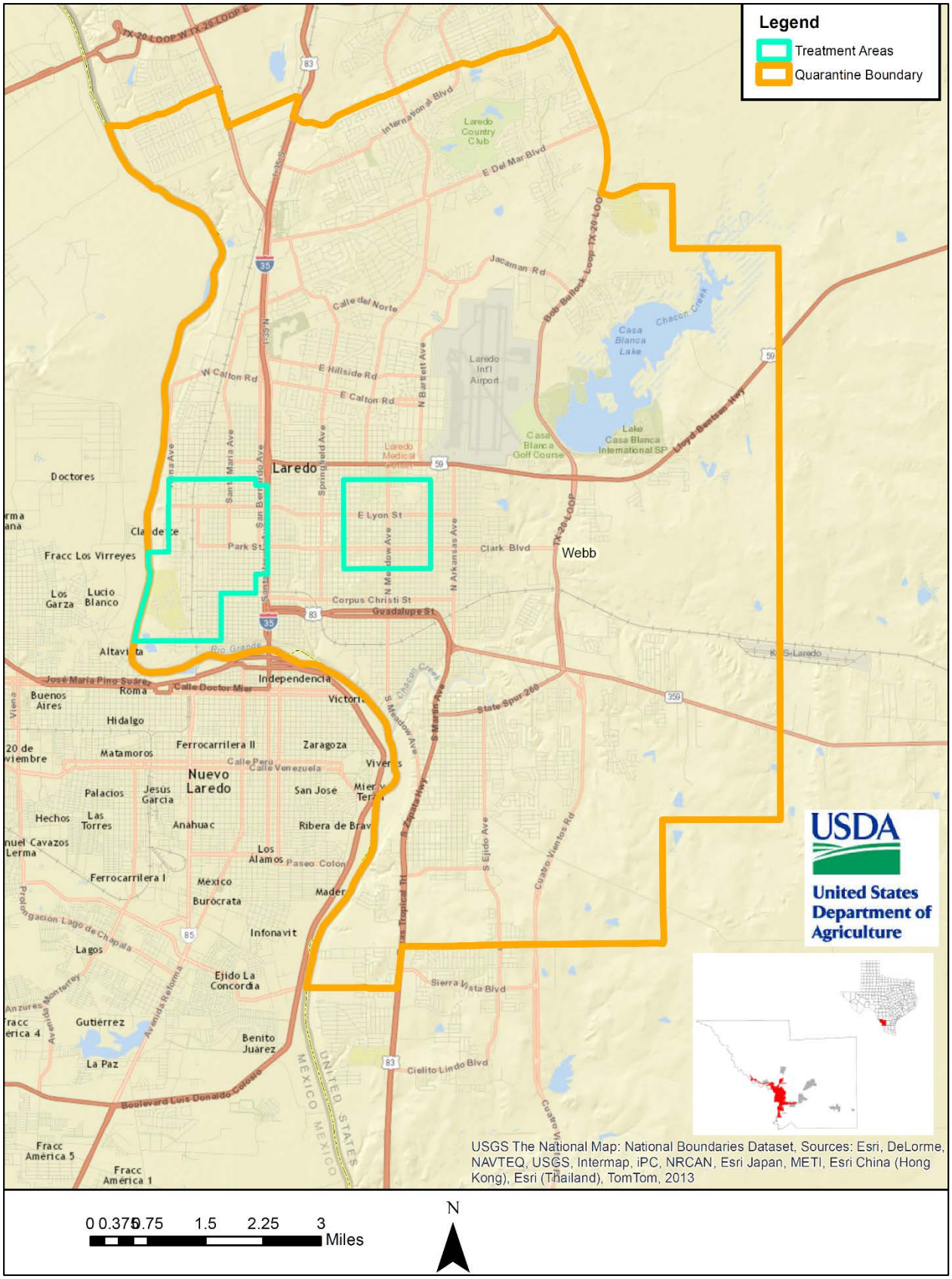
Appendix A. Webb County Mexfly Quarantined Area, Texas—as of June 7, 2016



Source: USDA APHIS PPD

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

The following resources were used by USDA-APHIS-PPD 10 June 2016.

Web-based mapping application for environmental assessments

- **NepaAssist:** http://nepassisttool.epa.gov/nepassist/entry.aspx
  (waters, superfund sites , historic sites, schools, demographics)

Additional resources

- http://viewer.nationalmap.gov/
  (national wildlife refuges, Native American areas)

- http://ecos.fws.gov/crithab/
  (federally designated critical habitat)

- http://ecos.fws.gov/ipac/
  (migratory birds, wetlands)

- http://www.nps.gov/nr/research/
  (historic sites)

- http://www.ams.usda.gov/AMSv1.0/nop 6 / 1 0 / 2 0 1 6
  (organic farms)

- http://nassgeodata.gmu.edu/CropScape/
  (crop data from the USDA National Agricultural Statistics Service Cropland Data Layer)