



United States  
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# **Mexican Fruit Fly Cooperative Eradication Program**

## **Willacy County, Texas**

## **Environmental Assessment May 2013**

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**Environmental Assessment,  
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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 of agriculture throughout many parts of the western hemisphere. Commercial and homegrown produce attacked by the pest is unfit to eat because the larvae tunnel through the fleshy part of the fruit, damaging it and subjecting it to decay from bacteria and fungi. Adult Mexflies are long-lived (up to 11 months), highly fertile, strong fliers, and highly mobile (UFL, 2012). Because of its wide host range (over 40 species of fruits) and its potential for damage, a permanent infestation of Mexfly would be disastrous to agricultural production in the United States. In the past, eradication programs have been implemented successfully to prevent the pest from becoming permanently established on the U.S. mainland.

A nonsterile, adult female Mexfly detection was made in a residential neighborhood of San Perlita, Willacy County, Texas, on April 15, 2013 (USDA–APHIS, 2013a). Mexfly larvae have since been detected in fruit from dooryard citrus trees in Willacy County—as of April 22, 2013 more than 50 larvae were collected from 3 different locations in the vicinity of San Perlita (USDA–APHIS, 2013a; 2013b). The nearest commercial citrus production is located approximately 15 miles away from the finds (USDA–APHIS, 2013a). These detections triggered the involvement of U.S. Department of Agriculture’s (USDA)–Animal and Plant Health Inspection Service (APHIS) in the quarantine and control program designed for this outbreak. Following Mexfly quarantine protocol, program officials have approved the following emergency actions (USDA–APHIS, 2013a):

- The organic insecticide spinosad has been applied to a 500-meter area around the core property sites;
- Fruit stripping from potential host plants inside an established quarantine boundary is underway;
- Delimitation traps are being set in an 81-square mile area around the detections; and
- Surveys are being conducted in order to plan sterile insect releases and further chemical treatments.

The current Mexfly infestation in Willacy County represents a major threat to the agriculture and environment of Texas and other U.S. mainland States. APHIS and the Texas Department of Agriculture (TDA) are proposing a cooperative program to eradicate the Mexfly infestation and eliminate that threat.

Mexfly has been introduced into the United States repeatedly since its first detection in Texas in 1927 (NAPIS, n.d.). The preceding Mexfly infestation in Texas to trigger APHIS response was reported a year ago when numerous detections were made during March and April in citrus-growing areas of Cameron, Hidalgo, and Willacy Counties (USDA–APHIS, 2012a). As of September 26, 2012, all quarantines in the tri-county area were lifted and no longer considered as infested geographical areas subject to Mexfly emergency quarantine (TDA, 2013a; USDA–APHIS, 2012b). As of April 30, apart from the quarantine encompassing San Perlita, there are no active Mexfly quarantines elsewhere in the continental United States.

APHIS has cooperated with State departments of agriculture on a number of successful Mexfly programs in the past. Examples of such programs in Texas include the previously mentioned tri-county program (USDA–APHIS, 2012a), as well as the “Mexican Fruit Fly Cooperative Eradication Program, Brooks County, Texas” (USDA–APHIS, 2009), and the “Mexican Fruit Fly Cooperative Management Program, Lower Rio Grande Valley, Texas” (USDA–APHIS, 2008a).

APHIS’ authority for cooperation in the program is based upon the Plant Protection Act (Title 4 of the Agricultural Risk Protection Act of 2000). This Act 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.

This environmental assessment (EA) analyzes the environmental consequences of alternatives which have been considered for Mexfly eradication, and considers, from a site-specific perspective, environmental issues relevant to this particular program. Alternatives for Mexfly 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* (EIS 1). 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* (EIS 2) (USDA–APHIS, 2001; USDA–APHIS, 2008b). Both environmental impact statements consider fruit fly risks and mitigations at the programmatic level. This case-specific EA incorporates the findings of both environmental impact statements by reference. The eradication measures being considered for this program have been discussed and analyzed comprehensively within the fruit fly chemical risk assessments (USDA–APHIS, 1998a and 1998b) and risk assessments for spinosad (USDA–APHIS, 1999b, 1999c, and 2003a).

Those documents are also incorporated by reference and summarized within this EA.

## **II. Alternatives**

Alternatives considered for this proposed program include (1) no Federal action, (2) quarantine and commodity certification, and (3) eradication using an integrated pest management (IPM) approach. APHIS' preferred alternative for the program is alternative 3. Component techniques of alternative 3 include the use of chemical pesticides to facilitate the timely elimination of the current Mexfly infestation.

### **A. No Action**

The no action alternative would involve no Federal effort to eradicate Mexfly or restrict its expansion from the infested area. In the absence of a Federal effort, quarantine and control would be left to State government, grower groups, and individuals. Expansion of the infestation would be influenced by any controls exerted over it, by the proximity of host plants, and by climatic conditions. "No action" might be the only reasonable alternative for some sensitive sites; in such cases, lack of action 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.

### **B. Quarantine and Commodity Certification**

This alternative combines a Federal quarantine with commodity treatment and certification. Regulated commodities harvested within the quarantine area would be restricted to movement within that area, unless treated with prescribed treatments and certified for movement to outside the area. For a large infestation, intensive quarantine enforcement activities could be necessary, including safeguarding of local fruit stands, mandatory baggage inspection at airports, and judicious use of road patrols and roadblocks. The quarantine actions of this alternative would result in a reduction of human-mediated movement of Mexfly in host plant materials 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. Control 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 include fumigation with methyl bromide and topical bait spray with a mixture of spinosad or malathion and a protein hydrolysate bait. (Refer to EIS 1 (USDA–APHIS, 2001) for more detailed information about the 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 (Preferred Alternative)**

APHIS' preferred alternative for the Mexfly program is eradication using an IPM approach. This alternative combines quarantine and commodity certification with eradication treatments. Eradication efforts may include any or all of the following:

- chemical control,
- sterile insect release technique (SIT),
- physical control,
- cultural control, and
- regulatory control.

APHIS' Mexfly programs in Texas have well-established procedures and treatments. The proposed program for Mexfly host plants will be conducted by APHIS-approved personnel on quarantined property, using chemical formulations and ground-based treatment protocols approved by APHIS.

Program officials have delineated the potential quarantine areas and are identifying regulated entities. Mexfly surveillance and trapping will be carried out over 81 square miles surrounding a detection site. Quarantine boundary lines may be expanded should a new Mexfly detection occur outside the established quarantine zone. 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 after methyl bromide treatment at the packing shed. 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.

Spinosad treatment every 7 to 10 days has been selected for the San Perlita program (USDA–APHIS, 2013a), and SIT via ground release will be performed at the rate of 500 flies per acre to achieve quarantine-protocol density over the program area (USDA–APHIS, 2013a). An APHIS Mexfly eradication program can include ground applications of either

malathion or spinosad bait. Where Mexfly larvae are found, eradication treatments may also employ foliar sprays. Foliar applications, which are applied up to a 500-meter radius around an infested property, may consist of spinosad or malathion protein bait formulations which are applied with hydraulic spray or hand-spray equipment. The applications are to be repeated at 6- to 14-day intervals. (For more detailed information on the alternatives for Mexfly control and their component methods, refer to the earlier fruit fly risk assessments (USDA–APHIS, 2003, 1999a, 1999b, 1998a, and 1998b)).

Program officials are to inform the public and impacted industry before taking action 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. If a potential impact arises for commercial production, grove owners and packing sheds will be notified of the Mexfly quarantine and treatment schedule.

### **III. Potential Environmental Consequences**

This EA analyzes the potential environmental consequences of alternatives which have been considered for Mexfly control, and considers, from a site-specific perspective, environmental issues that are relevant to this particular program. The preferred alternative, eradication, would involve an IPM approach that may employ any or a combination of the following:

- quarantine,
- regulatory chemical application (fumigation and bait spray application),
- eradication chemical applications (protein bait spray),
- cold treatment,
- vapor heat treatment, and
- irradiation treatment.

Alternatives for Mexfly control have been discussed and analyzed comprehensively within EIS 1 and EIS 2 (USDA–APHIS, 2001 and 2008b), incorporated by reference and summarized within this EA. The control measures being considered for this program have been analyzed comprehensively within the fruit fly chemical risk assessments (USDA–APHIS, 1998a and 1998b) and risk assessments for spinosad (USDA–APHIS, 1999a, 1999b, and 2003). Those documents are also incorporated by reference and summarized within this EA.

This area's site-specific characteristics were considered with respect to the program's potential to affect (1) human health, (2) nontarget species (including threatened and endangered species), and (3) environmental quality. In addition, potentially sensitive areas have been identified, considered, and accommodated through special selection of control methods and use of specific mitigation measures.

## **A. Affected Environment**

San Perlita is a small city (population approximately 574 as of 2011) occupying one-half square mile in east-central Willacy County (CityData, 2013; Garza, n.d.). The current detection sites are primarily located on private property in dooryard trees. Land use in San Perlita is primarily rural residential, with light industry and commercial enterprises to support local residents. The mayor also serves on the Lower Rio Grande Valley Development Council, a State-authorized commission to improve the region's health, safety, and general welfare, and to plan for future development (LRGVDC, 2009). Willacy County itself covers over 590 square miles in southern Texas and reported a year-round population of 22,134 in the 2010 U.S. Census (USCB, 2013). The county is bordered on the north by Kenedy County, on the west by Hidalgo County, on the south by Cameron County, and on the east by the Gulf of Mexico. The county seat and largest city is Raymondville, a few miles to the west of San Perlita, and reported a population of 11,284 in 2010 (Willacy County, 2012).

The greater part of Willacy County is cultivated farmland and ranchland. Much of the undeveloped land within the county is covered with a mixture of native grasses, cacti, and scrub vegetation. The climate is subtropical and humid, tending to hot summers and mild winters. Tropical storms and hurricanes are possible from June through October. Precipitation in Willacy County averages 27 inches per year; the growing season lasts 318 days, from late January until mid-December (TSHA, n.d.). Primary sources of income for the region are farming, ranching, and tourism, including recreational hunting and bay/marine fishing. The county's oil and gas deposits have led to the development of related commercial enterprises. Coastal and inland aquaculture of shellfish and finfish are also active industries in the region.

The county has a fluctuating population due to the coming and going of migrant workers, tourists, sports enthusiasts, and seasonal visitors. There are also numerous undocumented residents in the region. Texas State highways and local farm-to-market roads cross the program area and connect to six international bridges that go to Mexico (City of Raymondville, 2013). San Perlita lies about 12 miles from the Gulf of Mexico and the Intracoastal Waterway. The seaport of Corpus Christi is

about 80 miles away, and four international airports are within 100 miles of the current Mexfly infestation.

There are two major natural waterways in the region—the Rio Grande, which defines much of the international border between the United States and Mexico, and the Arroyo Colorado. The Arroyo Colorado is an ancient channel of the Rio Grande River that extends from southern Hidalgo County, across Cameron County, and into Willacy County, eventually discharging into the Laguna Madre near the Cameron–Willacy County line. The tidal segment of the Arroyo Colorado that connects to the Gulf of Mexico is defined as a coastal natural resource area and a coastal wetland under the Coastal Coordination Act (TAMU, 2011).

An inland saline water body, La Sal Vieja, is located about 18 miles from the Mexfly program area. It is home to a wide diversity of native plants and wildlife, and is located within the Lower Rio Grande Valley National Wildlife Refuge. At present, La Sal Vieja is not accessible to the public. La Sal Vieja provides habitat for endangered and protected species, and is also of archeological interest (Fort, 2012; Coole, 2012).

Willacy County crosses two Texas watersheds: Central Laguna Madre and South Laguna Madre (EPA, 2012). The county also lies within one of eight designated coastal basins in Texas. The Nueces-Rio Grande Coastal Basin is bounded on the north by the Nueces River Basin, on the south by the Rio Grande Basin, and by a bay or other outlet to the Gulf of Mexico (TWDB, 2013a).

Potable water and water for irrigation and recreational purposes in Willacy County are obtained primarily from the Rio Grande in neighboring Cameron County. The water is stored in reservoirs and lakes, and then sent to treatment plants. The City of San Perlita depends upon surface water and stored water pumped via Delta Lake canals to Raymondville for treatment (TWDB, 2013b).

Drought conditions continue to result in mandatory water conservation and restricted use throughout Texas. In southern Texas, international treaty issues and increased demand are also impacting long-term water availability (LRGVDC, 2009). The Rio Grande Floodway, a system of dams, levees, and channels, operated by the International Water and Boundary Commission (IWBC), partially diverts flood flows from the Rio Grande (Espey, 2008). The vast majority of the Rio Grande water available to the region—more than 94 percent—comes from supplies stored in the international Amistad and Falcon Reservoir System, owned by the United States and Mexico, and administered by the IWBC (State of Texas, 2010).

The Rio Grande Regional Water Planning Group (RGRWPG) is one of 16 regional groups set up under Texas State law to conduct long-range analysis of water needs and to develop water management strategies to meet those needs. RGRWPG covers eight counties along the mid and lower Rio Grande, including Maverick, Webb, Zapata, Jim Hogg, Starr, Hidalgo, Willacy, and Cameron. (See figure 1 for a map of the eight counties in the group.) Maintaining water quality standards is crucial for local communities dependent upon surface water, such as San Perlita (LRGVDC, 2009).

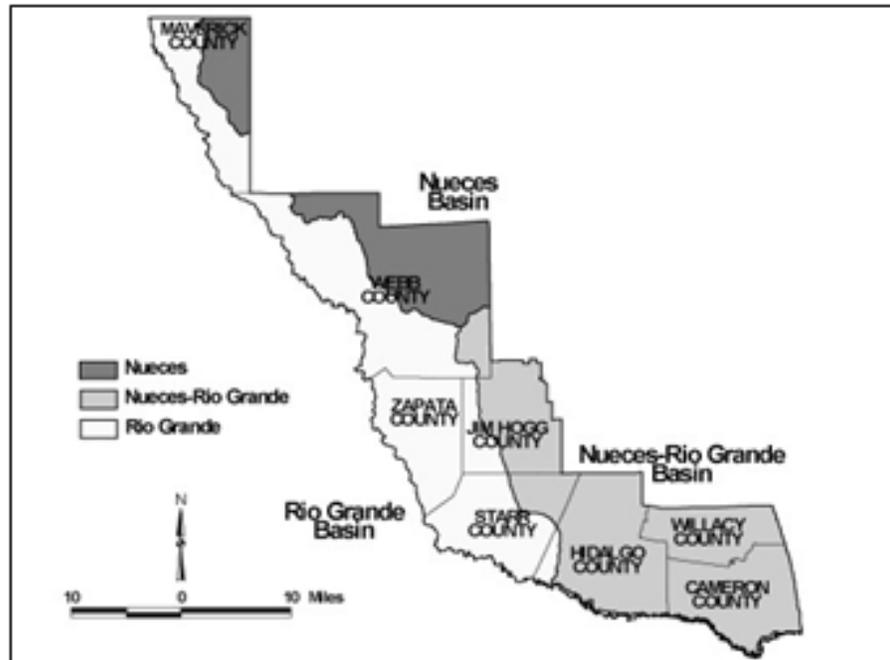


Figure 1. Rio Grande Region Water Planning Area (Region M).  
(State of Texas, 2010.)

Urban and agricultural runoff may flow directly into local waters, picking up trash, dirt, chemicals, and other contaminants along the way. The Mexfly eradication plan calls for ground-based spray applications to host plants inside the core area boundary. (See appendices A and B for further information about the San Perlita core area.) As an added protection to local water resources, standard mitigation measures will be applied to protect marine and freshwater resources, as discussed in section C, Environmental Quality.

## B. Human Health

The principal concerns for human health are related to the program use of three chemical pesticides including malathion bait, spinosad bait, and methyl bromide (a fumigant). 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. Each of the program pesticides is known to be toxic to humans. Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. Potential exposure hazard is low for all applications except malathion and spinosad bait. Program use of malathion and spinosad bait is therefore limited to regulatory treatments only, and applied primarily to commercial groves where exposure to the general public is unlikely. The analyses and data of EIS 1 and EIS 2 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 EIS 1 and EIS 2 (USDA–APHIS, 2001 and 2008b) and the human health risk assessments (USDA–APHIS, 1999a and 1998a) for more detailed information relative to human health risk.)

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

### **C. Other Considerations**

Potential environmental impacts of implementing the preferred alternative have been considered regarding historical and archeological sites in the proposed Mexfly program region. No adverse effects are anticipated as a result of surveillance activities, trapping, SIT, or spinosad applications.

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

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, was issued to ensure that there would be “meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications....” No federally recognized

tribal lands or protected Native American gravesites have been identified within the program area, and there are no expected impacts to tribal property from implementation of the preferred alternative. The preferred alternative for the proposed Mexfly program requires quarantine and treatment of commodities and premises only for those producers who decide to move their regulated commodity outside the quarantine boundary. Should future detections of Mexfly warrant expansion of the program area into Native American lands or otherwise have the potential to affect tribal property, program officials will initiate consultation with the governing tribal authorities before undertaking further action.

According to the Texas Historical Commission, if Mexfly quarantine boundaries or program activity occur on Federal, State, tribal, or public lands, or if the program requires funding, licensing, permitting, or other involvement by the Federal government, APHIS may have to consult with Native American tribal governments and the State Historical Preservation Officer. Section 106 of the National Historic Preservation Act applies to Federal or federally assisted undertakings on Federal, State, tribal, public, and private lands where an undertaking has the potential to have an effect on historic properties. This includes, but is not limited to, districts, sites, buildings, structures, and objects. The Antiquities Code of Texas and the Texas Health and Safety Code apply to projects occurring on non-Federal lands in Texas. A project may also be subject to the jurisdiction of the Antiquities Code of Texas if it will have an effect on a State Archeological Landmark. No sites within the proposed program area have been designated as local or Federal historic property. Should the program area expand to include areas of historical and/or archeological importance, no aerial or ground chemical applications will be permitted at these sites; however, aerial SIT, surveillance trapping, and fruit stripping by hand will be permitted.

Implementation of the preferred alternative is, at this time, not expected to have any adverse impacts on culturally sensitive sites, as none have been identified within the program area. Program officials are to undertake consultation with appropriate authorities if such a site is identified, and will restrict program treatments and activities, as necessary, in order to protect the site (THC, 2012).

#### **D. Nontarget Species**

The principal concerns for nontarget species, including threatened and endangered species, also involve 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. All of the pesticides considered in this EA are highly toxic to invertebrates, although the likelihood of exposure (and thus, impacts) varies a great deal from pesticide to pesticide

and with the use pattern. In general, a well-coordinated 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 and the quarantine and commodity certification alternative would be expected to result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts. (Refer to EIS 1 and EIS 2 (USDA–APHIS, 2001 and 2008b) and its nontarget risk assessments (USDA–APHIS, 2003, 1999b, and 1998b) for more information on risks to all classes of nontarget species.)

Conservation areas in the Lower Rio Grande Valley provide important habitat for a wide variety of wildlife that cannot be seen anywhere else in the United States. Some Texas wildlife refuges lie near to the current Mexfly program area (see appendix B). APHIS Mexfly programs are designed to prevent the introduction of program chemicals into nontargeted areas. Sites near San Perlita 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. Aerial SIT and surveillance trapping will continue, and fruit stripping by hand will be undertaken if Mexfly detections occur at such locations.

**1. Migratory Bird Treaty Act** The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–712) established a Federal prohibition, unless permitted by regulations, to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird or any part, nest, or egg of any such bird.

**2. Executive Order 13186** Executive Order 13186 directs Federal agencies taking actions with a measurable negative effect on migratory bird populations to develop and implement a Memorandum of Understanding with the U.S. Fish and Wildlife Service that promotes the conservation of migratory bird populations. On August 2, 2012, a Memorandum of Understanding between APHIS and with the U.S. Fish and Wildlife Service (FWS) was signed to facilitate the implementation of this Executive order.

More than 500 species of birds have been documented in the Rio Grande Valley. The Lower Rio Grande Valley is an important migration corridor that provides suitable habitat for many bird species. APHIS has evaluated the proposed Mexfly program in terms of potential impacts on migratory avian species. Implementation of the preferred alternative is not expected to have any adverse effect on migratory birds or their flight corridors.

### **3. Endangered Species Act**

Section 7 of the Endangered Species Act (ESA) and ESA's implementing regulations require Federal agencies to consult with FWS and/or the National Marine Fisheries Service to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat.

There are 11 federally listed species in Willacy County: ocelot (*Leopardus pardalis*), Gulf Coast jaguarundi (*Felis yagouaroundi*), West Indian manatee (*Trichechus manatus*), northern aplomado falcon (*Falco femoralis septentrionalis*), piping plover (*Charadrius melodus*), hawksbill sea turtle (*Eretmochelys imbricata*), leatherback sea turtle (*Dermochelys coriacea*), Kemp's Ridley sea turtle (*Lepidochelys kempii*), green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), and the plant Texas ayenia (*Ayenia limitaris*). APHIS prepared a programmatic biological assessment (BA) for program activities in Cameron, Hidalgo, and Willacy Counties that was submitted to FWS in 2008 (and updated yearly) and received a concurrence letter dated July 31, 2008. No new species have been listed in the program counties since that BA was submitted to FWS.

APHIS coordinated with FWS in Corpus Christi, Texas on April 30, 2013 regarding the proposed program, and determined that there will be no effect on listed species or critical habitat from program activities. Spinosad treatments will occur on individual dooryard trees in neighborhoods around San Perlita. No species are expected to be encountered in the program area and no effects are expected to occur beyond the program area.

### **E. 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 half-life of malathion in soil or on foliage ranges from 1 to 6 days; in water, from 6 to 18 days. The half-life of spinosad ranges from 8 to 10 days in soil, and up to 2 days in water; residues on plants persist for only a few hours. Effects from residues of individual treatments are no longer detectable in environmental substrates within a few weeks of application.

Methyl bromide volatilizes into air from soil and water, and is known to contribute to stratospheric ozone depletion. The volatilization half-life for methyl bromide from surface water ranges from 3.1 hours to 5 days. The degradation half-life of methyl bromide in water ranges from 20 to 38 days, depending on temperature and pH. Volatilization of methyl bromide from surface soil is rapid, with a half-life ranging from 0.2 to 0.5 days. The degradation half-life of methyl bromide in soil ranges from 31 to 55 days. Methyl bromide has a low affinity to bind to soils but is not considered a major contaminant of groundwater (NPIC, 2000). The small quantities used to treat for Mexfly disperse when fumigation chambers are vented. (Refer to EIS 1 and EIS 2 (USDA–APHIS, 2001 and 2008b) for a more detailed consideration of program pesticides' environmental fates.)

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

The proposed program area was examined to identify characteristics that would tend to influence the effects of program operations. Potentially sensitive areas were identified, considered, and accommodated, as necessary, through special selection of control methods and use of specific mitigation measures. Allowances were made for the special site-specific characteristics that would require a departure from the standard operating procedures. The approaches used to mitigate for adverse impacts to bodies of water are described in EIS 1 (USDA–APHIS, 2001).

Finally, the program has been considered with respect to its potential to cause cumulative impacts on the human environment. APHIS has considered implementation of the preferred alternative in the context of other pest insect eradication and quarantine projects in southern Texas. As of April 30, 2013, there are no other active Mexfly quarantine and control programs in Texas, aside from continual SIT and monitoring in counties at risk of infestation.

No significant environmental impacts are expected to result from proper implementation of the San Perlita Mexfly eradication and control program in Willacy County, Texas. There are no other eradication zones designated for Mexfly in the entire mainland United States.

The San Perlita Mexfly program was examined for potential synergistic and cumulative environmental impacts. One pesticide approved for use

against Mexfly, malathion, is also a prescribed treatment for the Texas cotton boll weevil eradication program; use of malathion in a Mexfly program within the Texas boll weevil quarantine (which currently includes all of Willacy County) should, therefore, be monitored and adjusted, where necessary, to minimize environmental impacts (TBWEF, 2013). Other treatments for potentially overlapping eradication programs in southern Texas target different insect species, and do not affect the same nontarget organisms (TDA, 2013b). Additional eradication and quarantine programs affecting Willacy County at the time of preparation of this EA (TDA, 2013b) have been designed to target plant pests including, but not limited to Asian citrus psyllid and citrus greening.

No significant cumulative impacts are anticipated as a consequence of the program or its use of component treatment measures. There have been no residual impacts from previous Federal and non-Federal actions targeting fruit fly infestations in the proposed program area, and there are no reasonably foreseeable future actions that could result in incremental increases in environmental effects. Based on APHIS' review of the context and intensity of the existing ongoing and potential future treatments, there will be no cumulative impacts to the human environment resulting from this program.

## **IV. Agencies Consulted**

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  
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U.S. Department of Agriculture  
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U.S. Fish and Wildlife Service  
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# **Appendix A. Mexfly Quarantine Boundaries in Willacy County, Texas – April 2013**

## **Boundary Description for WF 14 81 SQM Area**

Starting at a point described as 26.505293N Degrees Latitude and 97.652162W Degrees Longitude and then East to a point described as 26.559622N Degrees Latitude and 97.576641W Degrees Longitude and then South to a point described as 26.559622N Degrees Latitude and 97.577703W Degrees Longitude and then West to a point described as 26.429768N Degrees Longitude and 97.722912W Degrees Longitude and the return North to the starting point.

## **Core Description**

Starting at a point described as 26.505293N Degrees Latitude and 97.652162W Degrees Longitude and then East to a point described as 26.505293N Degrees Latitude and 97.636018W Degrees Longitude and then South to a point described as 26.490767N Degrees Latitude and 97.636018W Degrees Longitude and then West to a point described as 26.490767N Degrees Longitude and 97.652162W Degrees Longitude and the return North to the starting point.

Source: USDA APHIS, 2013c

# Appendix B. Wildlife Refuges in the Vicinity of the Willacy County Mexfly Quarantine

