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Service

# **Mexican Fruit Fly Cooperative Eradication Program**

## **Lower Rio Grande Valley, Texas**

### **Environmental Assessment May 2013**

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**Environmental Assessment,  
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# Table of Contents

I. Need for the Proposal .....	1
II. Alternatives .....	3
A. No Action .....	4
B. Quarantine and Commodity Certification.....	4
C. Eradication Using an IPM Approach (Preferred Alternative) .....	5
III. Potential Environmental Consequences .....	6
A. Affected Environment.....	7
B. Human Health .....	12
C. Environmental Justice and Other Considerations .....	12
D. Nontarget Species .....	14
E. Environmental Quality .....	16
IV. Agencies Consulted.....	20
V. References Cited.....	21
Appendix A. Mercedes Quarantined Area, Hidalgo and Cameron Counties, Texas—May 2013	
Appendix B. Wildlife Refuges in the Vicinity of Active Mexfly Quarantines in Texas—May 9, 2013	

# 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.

Early in May 2013, Mexfly larvae and adult flies were detected in the Mercedes and Donna regions of Hidalgo County, Texas (USDA–APHIS, 2013a, 2013b, and 2013c). Between May 1 and May 9, 2013, a total of nine adult Mexflies and two larval sites were confirmed in commercial and residential citrus-growing areas of the County, first in the vicinity of Mercedes and then to the west in the vicinity of Donna, Texas.

As a result of these finds, a quarantine designated as the Mercedes Quarantined Area<sup>1</sup> has been established that encompasses properties in a predominantly agricultural area of Hidalgo County, extending eastward into adjacent Cameron County (see appendix A) (TDA, 2013a). There are approximately 3,089 acres of commercial citrus groves inside the regulated area; 99 percent of the fruit was harvested prior to establishment of the regulated area (USDA–APHIS, 2013c). The Mexfly detections have triggered the involvement of U.S. Department of Agriculture’s (USDA) Animal and Plant Health Inspection Service (APHIS) in the quarantine and control program for this outbreak. Because of the evidence of expanding infestation (a mated female Mexfly collected in Harlingen, Cameron County, USDA–APHIS, 2013d) the potential environmental impacts of a Mexfly program encompassing both counties will be considered in this environmental assessment (EA). The potential environmental impacts of an active Mexfly program in neighboring Willacy County have already been considered in earlier EAs (USDA–APHIS, 2012a and 2013e), and are incorporated by reference in this document.

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<sup>1</sup> For the purposes of this document, and unless specified otherwise in the text, the terms “Mercedes Quarantined Area” and “program area” signify the same place.

Mexfly outbreaks have occurred repeatedly in the Lower Rio Grande Valley. In 2012, an expanding Mexfly infestation in the Lower Rio Grande Valley resulted in a coordinated pest control response over Hidalgo, Cameron, and Willacy Counties. The tri-county program was successful and the Mexfly quarantine was lifted on September 26, 2012 (USDA–APHIS, 2012a). The first Mexfly infestation in 2013 in the continental United States was confirmed in Willacy County; an active Mexfly quarantine and eradication program is currently underway in the San Perlita area of that county (TDA, 2013a; USDA–APHIS, 2013e). The recent detections described above occurred outside the San Perlita quarantine and have resulted in the establishment of the Mercedes Quarantined Area. Although a third Mexfly infestation has been reported near Harlingen, Texas (USDA–APHIS, 2013d), at the time of preparation of this EA there are no Mexfly quarantines elsewhere in the United States.

The State of Texas has listed the Mercedes intrastate quarantine at <https://www.texasagriculture.gov/RegulatoryPrograms/PlantQuality/PestandDiseaseAlerts/MexicanFruitFly.aspx>. APHIS is initiating a parallel interstate quarantine. Following Mexfly program protocols for eradication, releases of sterile Mexflies continue year-round at a rate of 500 flies per acre in at-risk counties. Program officials have approved the following emergency actions (USDA–APHIS, 2013b and 2013c):

- Application of the organic insecticide spinosad in two core areas as a ground-based treatment to Mexfly host plants in a 500-meter radius around the affected properties;
- Notification to impacted property owners and citrus industry of the quarantine boundaries and requirements;
- Delimitation trapping in host species located outside Mexfly detection sites; and
- Surveys in order to detect further larval infestations and to plan chemical treatments.

Mexfly has been introduced into the United States repeatedly since its first detection in Texas in 1927 (NAPIS, n.d.). The current Mexfly infestation in the Lower Rio Grande Valley 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. 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, 2012b), 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)(USDA–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* (EIS 2) (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 made of 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 Using an IPM Approach (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 are delineating quarantine areas and are identifying regulated entities that may be affected by the program. Mexfly surveillance and trapping will be carried out in the areas 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 ground-based treatment to Mexfly-host plants every 7 to 10 days has been selected for the Mercedes Quarantined Area (USDA–APHIS, 2013c). Used in conjunction with bait sprays targeted at detections, a sterile fly release rate of 320,000 per square mile (500 per acre) has been successful in eradicating Mexfly from Willacy and Cameron Counties (USDA–APHIS, 2010); SIT will be continued at the rate of 500 flies per acre to achieve quarantine-protocol density over the regulated area (USDA–APHIS, 2013c). An APHIS Mexfly eradication program can include ground applications of either malathion or spinosad bait. Where Mexfly larvae are found, eradication treatments may employ foliar sprays to host plants. 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. Given the potential impacts to commercial production, grove owners, packing sheds, nurseries, vendors, and other citrus industry operations will be notified of the Mexfly quarantine location 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**

### **1. Land Characteristics and Demographics**

The first Mexfly outbreaks in Texas during 2013 extend over portions of Hidalgo, Cameron, and Willacy Counties. The infestations are primarily located on private property in dooryard trees or commercial citrus groves. Local land use in the Mexfly-affected region of the Lower Rio Grande Valley is mainly agricultural or undeveloped, with rural residential neighborhoods, and scattered urban and light industrial districts. Much of the undeveloped land within the program area is covered with a mixture of native grasses and scrub vegetation. Mexfly detections have also been made on parkland and inside wildlife refuges.

The local climate ranges from subtropical to semi-arid, tending to hot summers and mild winters. All three counties are experiencing surface water losses from severe drought (see figure 1); however Cameron and Willacy Counties, located along the Gulf Coast, can also be subjected to intense rainfalls and flooding from thunderstorms and tropical depressions (TXCHART, 2010; Espey, 2008). Precipitation in the three-county area averages almost 26 inches per year; the growing season lasts 320 days, from late January until mid-December (Garza, n.d. (1) and n.d. (2); Garza and Long, n.d.; TSHA, n.d.).

The first Mexfly program of 2013 centers around the city of San Perlita in Willacy County. The city of Mercedes and the city of Donna are fewer than 10 miles north of the Mexican border in Hidalgo County, Texas, and are where two core areas for the second Mexfly program are located (see appendix A). From May 1 until May 8, 2013, the Mercedes Quarantined Area expanded from Mercedes about 5 miles west of Donna, and about 3 miles eastward into Cameron County (see appendix A). As of May 9, 2013, the program area covers 172 square miles (USDA–APHIS, 2013b). The city of Harlingen in Cameron County is also about 10 miles from the Mexican border and is the site of a third Mexfly quarantine, in the process of being mapped.

Willacy County has an area of slightly over 784 square miles, and a population estimated in 2012 at 22,058 (TSHA, n.d.). Willacy County has been evaluated in greater detail in a May 2013 EA for the “Mexican Fruit Fly Cooperative Eradication Program, Willacy County, Texas” (USDA–APHIS, 2013e). The Willacy Mexfly program is currently about 20 miles from the developing Cameron

County program and less than 40 miles from the Mercedes Quarantined Area in Hidalgo County.

Cameron County covers over 1,276 square miles in the southernmost tip of Texas, and has an estimated a year-round population of 415,557 based on the 2010 U.S. Census (USCB, 2013a; TSHA, n.d.). The county is bordered on the north by Willacy County, on the west by Hidalgo County, on the east by the Gulf of Mexico, and on the south by the Rio Grande and Mexico. The county seat and its largest city is Brownsville. The cities closest to the Mercedes Quarantined Area boundary line crossing Cameron County are La Feria and Harlingen.

Hidalgo County covers over 1,582 square miles of the Rio Grande delta in southern Texas with a reported year-round population of 806,552 based on the 2010 U.S. Census (USCB, 2013b; TSHA, n.d.). The county is bordered on the north by Brooks County, on the west by Starr County, on the east by the Cameron County, and on the south by the Rio Grande and Mexico. The county seat, Edinburg, is located about 10 miles from the city of McAllen, which has the highest recorded population in the county—an estimated 133,742 in 2011 (USCB, 2013c). The city of Mercedes is about 20 miles east of McAllen, off U.S. Highway 83 and Texas Route 491. The city of Donna is about 10 miles west of Mercedes, off U.S. Highway 83 and Texas Route 493, and about 14 miles east of McAllen.

Mercedes and Donna are small cities, each with populations estimated at more than 16,000 in 2011 (USCB, 2013d and 2013e). Mercedes occupies over 11 square miles and Donna over 8 square miles (USCB, 2013d and 2013e). The City of Harlingen is somewhat larger, having a recorded population of 66, 122 and covering almost 40 square miles (USCB, 2013f). Land use in the region beyond municipal limits is primarily agricultural and rural residential, with light industry and commercial enterprises to support a large number of visitors and residents. Major economic drivers in this Rio Grande region include agriculture, trade, services, manufacturing, and hydrocarbon production (Region M—see figure 1) (Combs, 2009). The district is represented 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).

Some residential areas in the program area are below poverty level; a substantial number of inhabitants are less than fluent in English (EPA, 2013). There are 943 recorded colonias in Hidalgo County and 195 listed in Cameron County, of the more than 2,294 colonias in Texas. “Colonias” are communities the Texas government defines as

residential areas along the Texas-Mexico border that may lack some of the most basic living necessities, such as potable water and sewer systems, electricity, paved roads, and safe and sanitary housing (Texas Secretary of State, 2013).

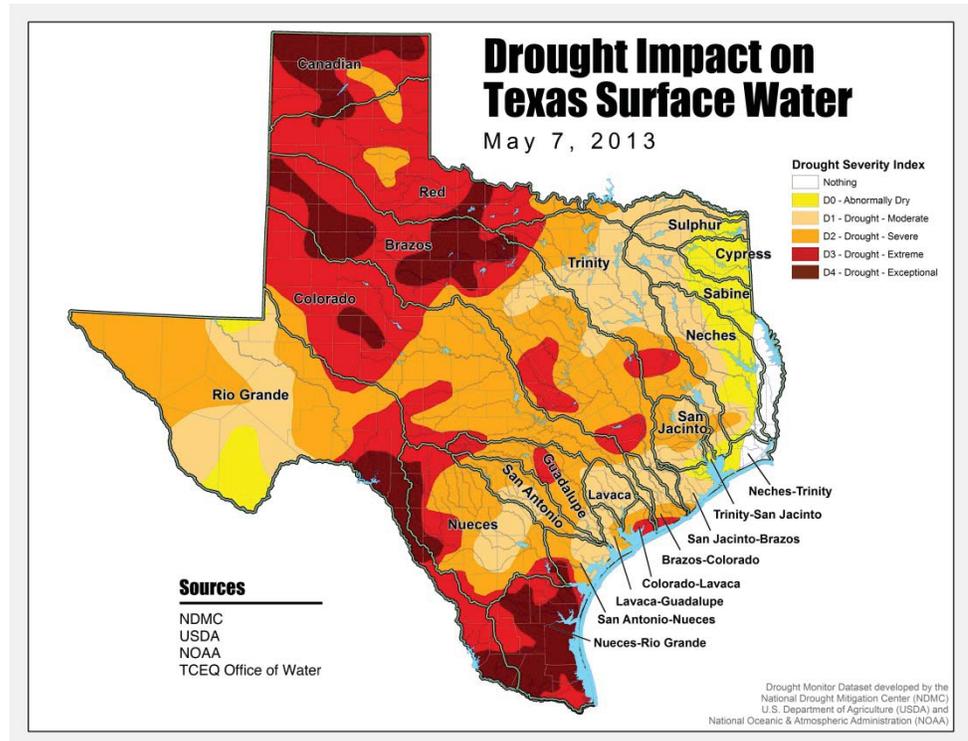


Figure 1. Surface water conditions in Texas as of May 2013. (TCEQ, 2013.)

Primary sources of income for the region are farming, ranching, and tourism, including recreational hunting and freshwater and marine fishing. The area’s mineral and oil deposits have led to the development of related commercial enterprises. Coastal and inland aquaculture of shellfish and finfish are also important industries (Garza, n.d. (1) and n.d. (2); Garza and Long, n.d.; TSHA, n.d.).

The program area, like the remainder of Lower Rio Grande Valley, 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 the rest of the United States and nine international bridges to Mexico. The Brownsville seaport is about 30 miles south of the program area; the seaports of Corpus Christi and Laredo are less than 120 miles away. Multiple domestic and four international airports are

within 100 miles of the current Mexfly infestations (Findaport, 2013; DCM, 2012).

## **2. Water Resources**

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 which 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). The Gulf Coast Aquifer and a few reservoirs are located in the program area, however, both groundwater and surface water resources are becoming less able to meet demand in the region due to ongoing drought conditions (figure 1), water impairment, and residential population expansion in Texas (Combs, 2009).

Delta Lake is the largest freshwater lake in the vicinity, located about 20 miles north of the Mercedes Quarantined Area and about 30 miles from Harlingen. Inland saline water bodies, known as La Sal del Rey (Hidalgo County) and La Sal Vieja (Willacy County), are about 10 miles from Delta Lake and 30 miles north of the Mercedes Quarantined Area. They are home to a wide diversity of native plants and wildlife, and both lie within the Lower Rio Grande Valley National Wildlife Refuge. At present, only La Sal del Rey is accessible to the public. Both saline water bodies provide habitat for endangered and protected species, and are also sites of archeological interest (Fort, 2012; Coole, 2012).

Hidalgo County is located within four Texas watersheds including Central Laguna Madre, South Laguna Madre, Los Olmos, and Lower Rio Grande (EPA, 2012). The Rio Grande forms the county's southern border and is the county's main source of potable and irrigation water. Water is stored in regional reservoirs and then sent to local water treatment plants for disinfection and purification (LRGVDC, 2013).

Cameron County is located within two Texas watersheds: South Laguna Madre and Lower Rio Grande (EPA, 2012). The Rio Grande forms part of the county's southern border and is the county's main source of potable and irrigation water. Occasional intense rains provide surface water but also a significant potential for flooding due to the slowly permeable loamy and clay soils prevalent in the county

and the land's limited grade, which result in poor drainage (Espey, 2008).

Hidalgo and Cameron Counties form part of the Nueces-Rio Grande Basin, one of eight designated coastal basins in Texas (see figure 2 for a map showing the Nueces-Rio Grande basin). The Nueces-Rio Grande Basin is bounded on the north by the Nueces River Basin, on the south by the Rio Grande Basin, and by bays or other outlets to the Gulf of Mexico (TWDB, 2013a).

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 adversely affecting long-term water availability (LRGVDC, 2013). 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).

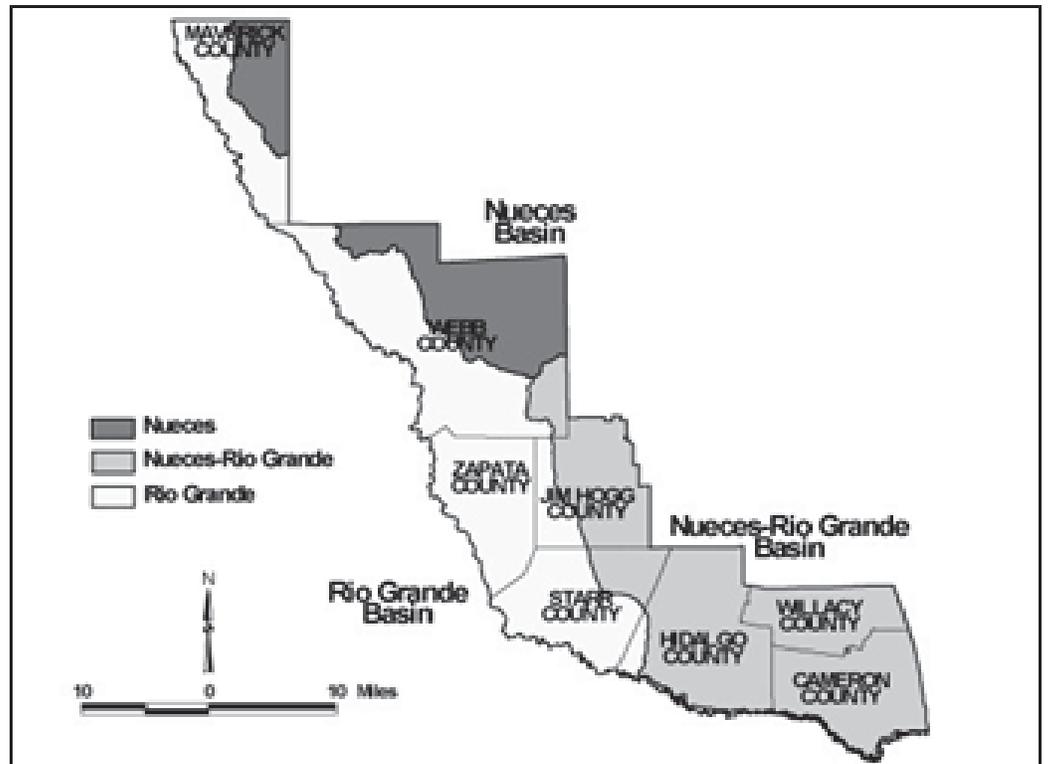


Figure 2. Rio Grande Region Water Planning Area (Region M).  
(State of Texas, 2010.)

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 2 for a map of the eight counties in the group.) Maintaining water quality standards is crucial for local communities dependent upon surface water (LRGVDC, 2009).

## **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 methyl bromide but not for 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. Environmental Justice and Other Considerations**

Potential environmental impacts of implementing the preferred alternative have been considered regarding minority and/or low-

income communities, tribal governments and property, and historical and culturally sensitive sites in the Mexfly program region. No adverse effects are anticipated as a result of surveillance activities, trapping, SIT, or program chemical applications.

As a USDA agency, APHIS is committed to achieving environmental justice throughout every community that may be affected by agency actions. Environmental justice is achieved when—

“To the greatest extent practicable and permitted by law, all populations are provided the opportunity to comment before decisions are rendered on, are allowed to share in the benefits of, are not excluded from, and are not affected in a disproportionately high and adverse manner by government programs and activities affecting the environment and its impact on human health.”

(USDA, 2012)

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, low-income or tribal populations over those effects to the general population. Where program activities may potentially affect non-English-speaking populations or an area without universal access to news media (in a colonia, for example) advance notice of such activity and information about potential exposure hazards will be translated and/or communicated directly by program officials.

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. A number of buildings and other sites within the proposed program area have been designated as local or Federal historic property. No aerial or ground chemical applications will be permitted at locations identified as having historical and/or archeological importance; 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 the historic or culturally sensitive sites that 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, 2013).

#### **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 the program area that might require special consideration should the program area expand include irrigation canals, coastal wetlands, and salt lakes of potential ecological importance. No program chemical applications will be permitted at these sites or within refuges or other protected areas. Aerial SIT and surveillance trapping will continue, and fruit stripping by hand will be undertaken if Mexfly detections occur at such locations.

## **1. Migratory Birds**

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.

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 (FWS) that promotes the conservation of migratory bird populations. On August 2, 2012, a Memorandum of Understanding between APHIS and 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 evaluated the proposed Mexfly program in terms of potential

impact on migratory avian species. Implementation of the preferred alternative is not expected to have any adverse effect on migratory birds or their flight corridors.

## **2. 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 endangered or threatened species or result in the destruction or adverse modification of critical habitat.

There are 14 federally listed species in Cameron, Hidalgo, and Willacy Counties: 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*), South Texas ambrosia (*Ambrosia cheiranthifolia*), Texas ayenia (*Ayenia limitaris*), Walker's manioc (*Manihot walkerae*), and star cactus (*Astrophytum asterias*). 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 coordinates with the FWS, Ecological Services Field Office in Corpus Christi, Texas, before implementing Mexfly program activities. FWS reviews maps of the quarantined area and notifies APHIS if listed species are present in the program area. If listed species are present, APHIS implements protection measures for those species as described in the programmatic BA.

## **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.)

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 core area boundaries. (See appendices A and B for further information about the current core areas.) As an added protection to local water resources, standard mitigation measures will be applied to protect marine and freshwater resources.

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).

### **Cumulative Impacts**

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 May 10, 2013, there is one active Mexfly quarantine and control program about 17 miles away (the San Perlita Quarantined Area), and another program in the Harlingen area of Cameron County is under development (USDA–APHIS, 2013d). Texas also conducts continual SIT and monitoring in designated counties at risk of Mexfly infestation.

No significant environmental impacts are expected to result from proper implementation of Mexfly eradication and control program in the Mercedes Quarantined Area. There are no other regulated areas for Mexfly in the mainland United States, apart from those in Texas.

The Mexfly program for the Mercedes Quarantined Area 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 (currently active in the following Counties: Maverick, Webb, Zapata, Jim Hogg, Brooks, Kenedy, Starr, Hidalgo, Willacy, and Cameron) 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 Hidalgo and Cameron Counties 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. No residual impacts have been reported from previous Federal and non-Federal actions targeting fruit fly infestations in the proposed program area, and no reasonably foreseeable future actions that could result in incremental

increases in environmental effects are anticipated. 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  
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 20737-1238

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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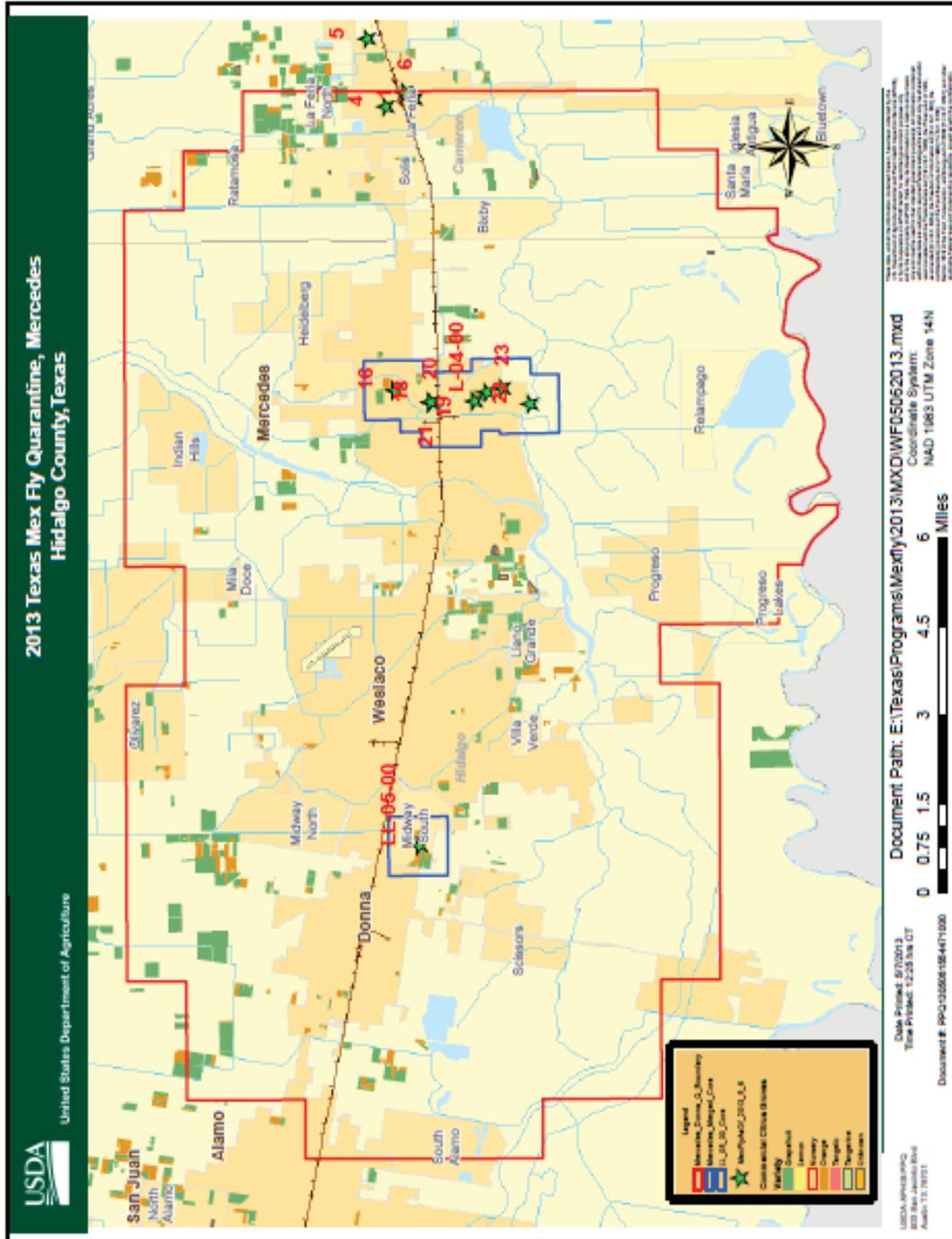
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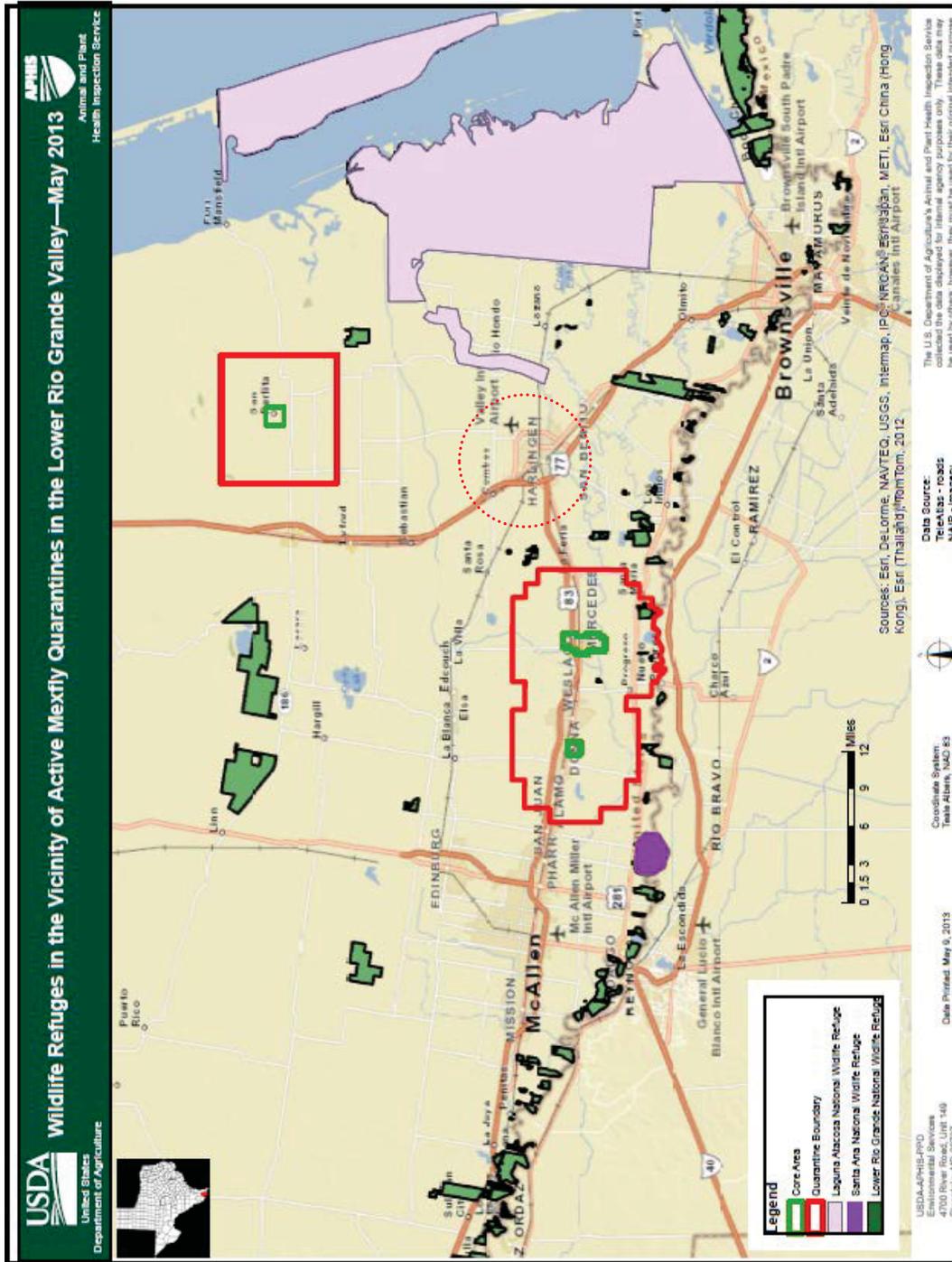
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# Appendix A. Mercedes Quarantined Area, Hidalgo and Cameron Counties, Texas—May 2013



# Appendix B. Wildlife Refuges in the Vicinity of Active Mexfly Quarantines in Texas—May 9, 2013



Note: Dotted circle around Harlingen indicates approximate area of the 3<sup>rd</sup> Quarantine.