United States
Department of
Agriculture

Marketing and
Regulatory
Programs

Mexican Fruit Fly Cooperative Eradication Program

Rio Grande Valley, Texas

Environmental Assessment, April 2019

Mexican Fruit Fly Cooperative Eradication Program

Rio Grande Valley, Texas

Environmental Assessment, April 2019

Agency Contact:
Dr. Richard N. Johnson
Fruit Fly National Policy Manager
Plant Protection and Quarantine
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
4700 River Road, Unit 26
Riverdale, MD 20737–1232

Non-Discrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the bases of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parenttal status, sexual orientation, or all or part of an individual's income is derived from any public assistance program, or protected genetic information in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases will apply to all programs and/or employment activities.)

To File an Employment Complaint

If you wish to file an employment complaint, you must contact your agency's EEO Counselor (PDF) within 45 days of the date of the alleged discriminatory act, event, or in the case of a personnel action. Additional information can be found online at http://www.ascr.usda.gov/complaint_filing_file.html.

To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form (PDF), found online at http://www.ascr.usda.gov/complaint_filing_cust.html, or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250–9410, by fax (202) 690–7442 or email at program.intake@usda.gov.

Persons With Disabilities

Individuals who are deaf, hard of hearing, or have speech disabilities and you wish to file either an EEO or program complaint please contact USDA through the Federal Relay Service at (800) 877–8339 or (800) 845–6136 (in Spanish).

Persons with disabilities who wish to file a program complaint, please see information above on how to contact us by mail directly or by email. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.) please contact USDA's TARGET Center at (202) 720–2600 (voice and TDD).

Mention of companies or commercial products in this report does not imply recommendation or endorsement by USDA over others not mentioned. USDA neither guarantees nor warrants the standard of any product mentioned. Product names are mentioned to report factually on available data and to provide specific information.

This publication reports research involving pesticides. All uses of pesticides must be registered by appropriate State and/or Federal agencies before they can be recommended.

CAUTION: Pesticides can be injurious to humans, domestic animals, desirable plants, and fish and other wildlife—if they are not handled or applied properly. Use all pesticides selectively and carefully. Follow recommended label practices for the use and disposal of pesticides and pesticide containers.

Table of Contents

I. Need for the Proposal

The Mexican fruit fly (Mexfly), *Anastrepha ludens* (Loew), is native to southern and central Mexico. It attacks more than 40 different kinds of fruits, and is 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 (TDA, 2019a; NAPIS, 2017). U.S. regions along the Rio Grande Valley (RGV) border with Mexico continue to experience Mexfly introductions. 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). Each year, Mexfly enters the lower RGV's 27,000 acres of commercial citrus crops from south of the border; the fly is also a threat to surrounding citrus-producing regions, including the States of California, Arizona, Louisiana, and Florida. Physical damage begins when female flies lay eggs in host fruit—the eggs hatch into larvae which makes the fruit unmarketable. Economic losses due to Mexfly infestation are measured not only in damaged crops, but also in costs associated with eradication and host movement restrictions designed to protect consumers (TDA, 2019a).

Mexfly quarantines may be triggered when a breeding population is confirmed, or when five wild Mexflies are captured within a 3-mile radius during one life cycle (USDA APHIS, 2013). In March 2019, two new Mexfly incursions were detected in the Rio Grande Valley (RGV) region of the State of Texas. Between February 19 and March 15, seven wild Mexflies (six immature females, one female mated with a sterile Mexfly) were collected from McPhail traps on citrus hosts in the Edinburg area of Hidalgo County, Texas. Confirmation of five Edinburg captures led to establishment of the Edinburg Mexfly Quarantined Area—163-square miles in a mixed residential/rural region of Hidalgo County (USDA APHIS, 2019a). On March 8, six wild Mexflies (four mature males, two immature females) were found in McPhail traps on citrus hosts in the Zapata area of Zapata County, Texas. Confirmation of five Zapata captures led to establishment of the Zapata Mexfly Quarantined Area (USDA APHIS, 2019b). (The proposed Edinburg and Zapata Mexfly program areas are shown on maps A-1 and A-2 of appendix A in this document.)[1]

[1] For the purpose of this document, "RGV" denotes Brooks, Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata Counties. 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.

Many Mexfly-host plant species are grown in the RGV, which increases the potential environmental impact of the current Mexfly infestation. Approximately 3,810 acres of commercial citrus are cultivated within the proposed Edinburg Mexfly Quarantine boundary; 248 of these acres occur within one of the proposed treatment cores (USDA APHIS, 2019a). There are seven citrus packing facilities in the Edinburg program area. Citrus harvest is approximately 60 percent complete for this season. There is no commercial citrus production within the Zapata program area (USDA APHIS, 2019b).

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (USDA APHIS) and the Texas Department of Agriculture (TDA) are proposing a new cooperative program to eradicate the Mexfly infestations in Edinburg and Zapata, and prevent the spread of Mexfly to noninfested areas of the United States. USDA APHIS' authority for pest control and grower support programs is the Plant Protection Act (Title 4 of the Agricultural Risk Protection Act of 2000, 7 United States Code (U.S.C.) §§ 7701–7786). Various sections authorize operations to control insect pests (§ 7714); conduct pest detection, surveillance (§ 7721), and inspections (§ 7731); compile information, conduct enforcement investigations (§ 7732), enter into agreements (§ 7752), transfer funds (§ 7772); and to use emergency measures to prevent the dissemination of plant pests new to, or not widely distributed throughout, the United States (§§ 7715, 7721). In particular, the Secretary of Agriculture may cooperate with State authorities or other persons in the administration of programs for the improvement of plants, plant products, and biological control organisms (§ 7751(d)). In connection with an emergency in which a plant pest or noxious weed threatens any segment of the agricultural production of the United States, the Secretary may transfer from other appropriations or funds amounts as the Secretary considers necessary to be available in the emergency for the arrest, control, eradication, and prevention of the spread of the plant pest or noxious weed, and for related expenses (§ 7772(a)).

Because it is possible that additional Mexfly infestations could be discovered in southern Texas during 2019, the potential environmental impacts of a cooperative Mexfly eradication program will be considered in this environmental assessment (EA) for implementation in seven counties: Brooks, Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata Counties. USDA APHIS has participated in cooperative Mexfly eradication programs for each of these seven counties during the past 10 years. Three of the seven counties in the potential program area[2]—Cameron, Hidalgo, and Willacy—are home to Texas' major citrus-producing region. South Texas experiences repeated introductions of Mexfly, presumably because

[2] For the purpose of this document, "potential program area" refers to seven specific counties in Texas: Brooks, Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata.

of its proximity to Mexico, and high volume of potentially infested imports.

The State of Texas intensifies surveys for Mexfly in the neighborhood of each confirmed Mexfly detection. The State initiates Mexfly delimitation and eradication programs in locations where the types and number of detections are not yet sufficient to trigger quarantine regulatory actions. 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 (USDA APHIS, 2009). Monitoring for Mexfly continues throughout all counties of Texas where there are susceptible host plants, and an environment conducive for fruit fly establishment.

To date, USDA APHIS has cooperated with the California, Florida, Puerto Rico, and Texas Departments of Agriculture on fruit fly eradication programs. Every fruit fly population targeted by USDA APHIS' cooperative programs has been successfully eradicated. USDA APHIS and its cooperating partners discuss and comprehensively analyze alternatives for exotic fruit fly programs. USDA APHIS first evaluated the environmental impacts of fruit fly control technologies in the "Fruit Fly Cooperative Control Program, Final Environmental Impact Statement—2001" (EIS1) (USDA APHIS, 2001). USDA APHIS reexamined its findings and introduced an additional tool for programs in the "Use of Genetically Engineered Fruit Fly and Pink Bollworm in APHIS Plant Pest Control Programs, Final Environmental Impact Statement—2008" (EIS2) (USDA APHIS, 2008). Both EIS2 and EIS1 consider fruit fly risks and mitigations at the programmatic level. This EA incorporates by reference the findings of EIS2 and EIS1.

This EA analyzes the environmental consequences of alternatives considered for Mexfly eradication, and analyzes, from a site-specific perspective, environmental issues relevant to this particular program. The eradication measures being considered for this program were discussed and comprehensively analyzed within USDA APHIS' fruit fly chemical risk assessments (USDA APHIS, 2014, 2003, 1999, 1998a, 1998b). These documents also are incorporated by reference and summarized within this EA. Environmental documentation for USDA APHIS' fruit fly control programs may be viewed online via the following links: USDA APHIS fruit fly control program environmental documentation and USDA APHIS GE control applications for plant health.

This EA complies with provisions of the National Environmental Policy Act of 1969, as amended (NEPA)(42 U.S.C. §§ 4321–4320m), the implementing regulations adopted by the Council on Environmental Quality (40 Code of Federal Regulations (CFR) parts 1500–1508), the

Office of the Secretary of Agriculture's NEPA regulations (7 CFR part 1b), and the NEPA implementing procedures specific to USDA APHIS (7 CFR part 372).

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. Under all of these alternatives, trapping and surveys for Mexfly will continue in the RGV Mexfly program areas as a preventive measure. Component methods of alternative C include the use of regulatory controls, high-density trapping, host survey, chemical treatments, and biological control (sterile insect technique (SIT)) to facilitate the timely elimination of the current Mexfly infestation. These alternatives and their component methods are the same as the alternatives considered in EIS2 and EIS1 (USDA APHIS, 2008, 2001).

All pesticides used in USDA APHIS programs are required to comply with the Federal Insecticide, Fungicide, and Rodenticide Act. To fulfill obligations under this statute, USDA APHIS will ensure that a full pesticide registration (i.e., section 3 registration), a special local needs registration (i.e., section 24(c) registration) and/or an emergency quarantine exemption (i.e., section 18 exemption) have been approved by the U.S. Environmental Protection Agency (EPA) for each pesticide use pattern in fruit fly program applications.

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 an infested area. In the absence of a Federal effort, quarantine and control would be left to State and local government, grower groups, and individuals. Expansion of the infestation would be influenced by any controls exerted over it, by the proximity of host plants, and by climatic conditions.

"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 could result in substantial economic losses to growers in the United States, as well as negative impacts to U.S. export agricultural markets.

Under the no action alternative, USDA 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 described in the Fruit Fly subpart of 7 CFR § 301.32. Regulated commodities harvested within the quarantine area would not be allowed to be moved 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 limited permit, contingent upon commodity treatment. The grower or shipper would need to comply with specific conditions to minimize the pest risk and prevent the spread of Mexflies. Eradication methods that may be used in this alternative include treatment with (1) regulated chemicals, (2) cold, (3) vapor heat, and (4) irradiation.

Treatment with regulated chemicals may include fumigation with methyl bromide (MB), and bait spray with a mixture of protein hydrolysate (a food bait) and spinosad (an organic pesticide). (Refer to EIS1 (USDA APHIS, 2001) for more detailed information about these chemicals and their uses.) Cold, vapor heat, and irradiation treatments of certain produce, as a requirement for certification and shipping, must be done in facilities that are inspected and approved by USDA APHIS.

C. Eradication Using an IPM Approach (Preferred Alternative)

USDA APHIS' preferred alternative for Texas Mexfly programs is eradication using an IPM approach. This alternative combines quarantine and commodity certification with eradication treatments. IPM combines the best available control tactics, with an emphasis on the least hazardous methods, to effectively and economically reduce pests. IPM relies on information about the pest and its changes in population to devise control strategies that minimize pesticide use (TDA, 2019b).

USDA APHIS declared successful eradication of Mexfly infestations in Cameron, Willacy, and Zapata Counties, using a similar IPM strategy, in 2018 (USDA APHIS, 2018a, 2018b, 2018c). The analysis in this document is substantively similar to the EA supporting those actions, despite updated wording and site-specific considerations (USDA APHIS, 2018d).

For many species of exotic fruit flies, effective nonchemical control or eradication techniques do not exist (USDA APHIS, 2001). USDA APHIS and TDA's cooperative Mexfly eradication programs rely primarily on surveillance, bait sprays, and the sterile insect technique (SIT). Eradication strategies may, therefore, 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 Mexflies
- host removal
- eradication chemical applications
- mass trapping to delimit the infestation and monitor post-treatment Mexfly populations
- SIT

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.

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

1. Delimitation

McPhail traps are used to delimit the infestation and help determine the efficacy of treatments. To do this, the traps are placed in varying densities inside the core and buffer areas surrounding Mexfly detection sites. All monitoring traps are serviced for a period equal to three Mexfly life cycles beyond the date of the last fly detection. As part of the ongoing surveillance inside the quarantine, fruit of host plants is sampled for the presence of eggs and larvae in a 200-meter radius around each detection site.

2. Eradication Treatments

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 (USDA APHIS, 2019a, 2019b). Treatments are highly localized sprays consisting of a formulation of spinosad and protein hydrolysate. Spinosad applications in Texas occur at 7- to 10-day intervals for three Mexfly life cycles (USDA APHIS, 2009).

Spinosad is an organic pesticide derived from the fermentation juices of a soil bacterium called *Saccharopolyspora spinosa* (Merchant, 2004). Spinosad is relatively nontoxic to mammals and beneficial arthropods; it has approved uses for the control of certain pests of agriculture, livestock, pets, and humans (DeAngelis, 2004).

Protein hydrolysate is a common food bait 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 food bait.

Evidence of a breeding population (immature life stages, mated female Mexfly, or multiple adult captures within a certain distance and timeframe) results in the stripping and removal of host fruit from all known infested and adjacent properties within an approximately 100-meter radius of each detection site.

SIT is used to prevent and or eradicate the Mexfly infestation. The eradication area receives a periodic release of sterilized male Mexflies in order to disrupt the reproduction cycle and control the wild population. Releases over Mexfly program areas are planned to achieve a minimum weekly release rate equivalent to at least 500 sterile Mexflies per acre, and continue for a minimum of two life cycles beyond the last Mexfly detection date (typically 4 to 6 months, dependent on temperature). SIT releases began on March 21 in the Zapata program area and are ongoing in the Edinburg and Hidalgo County area (J. Stewart, personal communication, 04/02/10; USDA APHIS 2019a, 2019c).

Establishment of a quarantine boundary will ensure any host material that leaves the program area is free of Mexfly. Host material may be treated in enclosed areas or containers by treatment consisting of cold, vapor heat, irradiation, or fumigation with MB (USDA APHIS, 2004, 2001). After host fruit receives USDA APHIS-approved methyl bromide (MB) treatment in the field and/or on the premises, growers will be able to move their harvest fruit out of the quarantined area, under a temporary certificate, to enclosed facilities for packing. Program treatments will be

restricted to those approved for the type of site if the Mexfly quarantine spreads to federally protected historical sites, wilderness, or Tribal lands.

Before taking action, program officials 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 (USDA APHIS, 2014, 2003, 1999, 1998a, 1998b).

III. Affected Environment

This chapter briefly discusses pertinent physical and demographic features of two proposed Mexfly program areas in the RGV. The information serves as background to understanding current program areas in the context of potential program areas. Additional Mexfly program areas within the RGV would be identified on an as-needed basis as infestations and incursions occur.

A. Land Characteristics and Demographics

The proposed cooperative eradication programs would occur in Hidalgo County and Zapata County. Local land use in program areas is a mix of agricultural production and residential neighborhoods. Farm-to-Market Roads 490, 907, 1426, 1925, and 2061 pass through the Edinburg program area. U.S. Highway 281, a major south-north corridor from the Mexican border to the Canadian border, runs centrally through the Edinburg program area, and is concurrent with Interstate Route 69C in Hidalgo County. U.S. Highway 83 and Texas State Highway 16 cross the Zapata program area.

A map of Texas geographic regions is shown in figure 1. Brooks, Hidalgo, Starr, Webb, and Zapata Counties are classified as part of the South Texas Plains, primarily brush country, which features a mixture of native grasses and scrub vegetation, mesquite, live oaks, and chaparral. The plains stretch from the edges of Texas Hill Country into the subtropical regions of the lower RGV. Soils of the South Texas Plains consist of alkaline to slightly acidic clays and clay loams. The deeper soils support tall brush,

such as mesquite and spiny hackberry, whereas short, dense brush grows in the shallow, caliche soils (TPWD, 2017). Willacy and Cameron Counties contain prairies, sand sheets, and coastal marshland along the Gulf of Mexico. Much of the South Texas Plains tends to be dry. The lower RGV contains good quality agricultural land, the region being a true delta and the soils alluvial, varying from sandy and silty loam through loam to clay (Vigness and Odintz, 2015).

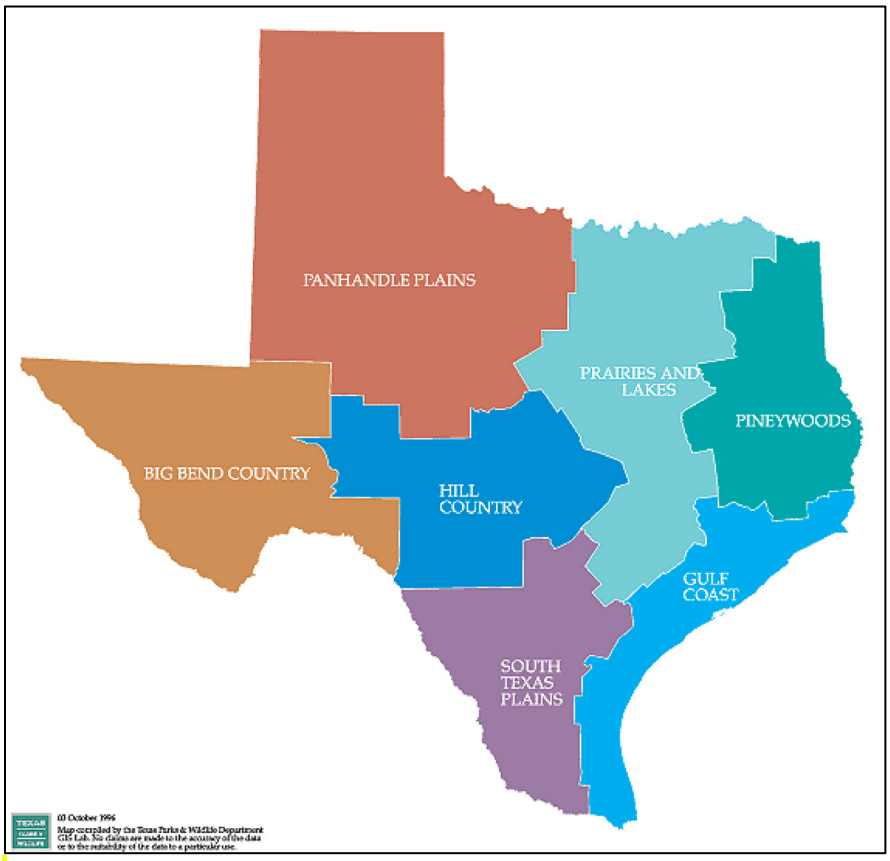


Figure 1. Regional divisions in Texas. (Source: Texasthestateofwater.org)

The RGV climate ranges from subtropical to semi-arid, tending to hot summers and mild winters. Willacy and Cameron Counties border the Gulf of Mexico where many different types of coastal natural hazards can occur, such as high winds, flooding, tornadoes, subsidence, coastal erosion, and relative sea level rise (GOMA, 2013). Normal rainfall across the region is less than 25 inches annually; hot summers cause heavy evaporation so that cultivation without irrigation is limited. Crop-damaging freezes can occur, even in the lower RGV (TSHA, 2018a). Examples of South Texas wildlife are listed in table 1.

Citrus and other Mexfly hosts are widely grown by residents in all seven counties of the potential program area. The Texas citrus industry is almost totally located in the lower RGV, with about 85 percent of the acreage in

Hidalgo County and the remainder in Willacy and Cameron Counties (Sauls, 2008).

Table 1. Wild Flora and Fauna Commonly Found in South Texas.

Vegetation	Animals
Anaqua	Caracara
Brasil	Catfish
Common Cattail	Chachalaca
Desert Yaupon	Elf Owl
Duckweed	Ferruginous Pygmy-Owl
Fiddlewood	Green Jay
Fresno	Grooved-Billed Anis
Great Leadtree	Indigo Snake
Honey Mesquite	Leopard Frog
Live Oak	Mexican Burrowing Toad
Panic Grass	Redwing Blackbird
Plantain	Road Runner
Retama	Sunfish
Saffron Plum	Swallowtail Butterfly
Saltmarsh Spikerush	Texas Longnose Snake
Silverleaf Sunflower	Texas Tortoise
Smartweed	
Southern Live Oak	
Sugarberry	
Texas Ebony	
Texas Kidneywood	
Texas Wild Olive	
Wax Myrtle	

(Source: TPWD, 2017)

Oranges and other citrus are not the only commercial crops cultivated in the Edinburg and Zapata program areas. Cropland statistics for 2018 also indicate production of corn, cotton, herbs, oats, onions, non-alfalfa/other hay, rice, sod/grass seed, sugarcane, sunflowers, and watermelons. In both locations, most of the cropland acreage was planted with sorghum. (See appendix B for data source).

There are over 250 recorded colonias in the Edinburg and Zapata program areas, of the more than 2,294 colonias in Texas (TSOS, 2017; see appendix B for additional data source).[3] There are 200 colonias located inside the Edinburg quarantine boundary; 21 are located in proposed treatment cores. There are 28 colonias located inside the Zapata quarantine boundary; 10 are located in proposed treatment cores. (For more information about land features in relation to the proposed Mexfly program areas, see table 2.)

[3] The term "colonia," in Spanish means a community or neighborhood. The Office of the Texas Secretary of State defines a "colonia" as an unincorporated residential area located in a county in which any part of that county is within 150 miles of the Texas-Mexico border. Colonias may lack some basic living necessities, such as potable water and sewer systems, electricity, paved roads, and safe and sanitary housing. (TSOS, 2017).

Table 2. Mexfly Program Areas in Relation to Certain Land Sites.*

Designated Land Use	Edinburg Program Area (Distance Rounded Off to Nearest Tenth of a Mile)	Zapata Program Area (Distance Rounded Off to Nearest Tenth of a Mile)
City, State, and Federal Lands	None within treatment cores. Within quarantine • 4 cemeteries • At least 3 golf course/country clubs • South Park • Lower Rio Grands Valley National Wildlife Refuge	None within treatment cores. Within quarantine • 3 cemeteries • 1 golf course Nearest portion of Lower Rio Grande Valley National Wildlife Refuge, 19.0 from quarantine.
Country of Mexico	Nearest quarantine boundary, 12.0	0.0 (The quarantine boundary and 1 treatment core border Mexico.)
National Register Historic Sites	None within the program area.	None within the program area.
Nearest Airports	• McAllen Miller International, 9.9 • Valley International, 31.9 • Brownsville South Padre Island International, 53.3 • Corpus Christie International, 109.4 • Laredo International, 117.3	• Falcon State, 34.0 • Laredo International, 52.0 • Quetzalcóatl International (Mexico), 60.0 • MacAllen-Miller International, 95.0 • Gen. Lucio Blanco International (Mexico), 111.0
Nearest Seaports	• Harlingen, 31.0 • Port Mansfield, 42.0 • Brownsville, 51.0 • Port Isabel, 59.0 • Saint Padre, 62.0	• Harlingen, 103.0 • Brownsville, 122.0 • Port Mansfield, 112.0 • Port Isabel, 131.0 • Saint Padre, 124.0
Nearest Native American Lands	None within 75 miles of treatment cores.	Ceded land in northern portion of the program area (including at least 1 treatment core).
Nurseries and Garden Centers	None in treatment cores. 7 within the quarantine.	1 in treatment core. 1 within the quarantine.
Organic Production and Farmer's Markets	None in treatment cores. 1 organic facility within the quarantine.	None within the program area.
Schools and Academic Institutions	At least 73 in the program area (42 within treatment cores).	5 identified in the program area (2 within treatment cores).

* See appendix B for data source.

Table 3 contains summary information about the seven Texas counties that comprise the potential Mexfly program area.

Table 3. General Demographic Information for Counties in the Potential RGV Mexfly Program Area.

County	Reported Population in 2010	Area (sq mi)	Economy	Recreation	Principal Agriculture
Brooks	7,223	943.7	Oil, gas, hunting leases, agriculture	Hunting, fishing, Heritage Museum, Don Pedro Jamillo shrine, Fiesta del Campo in October	Cattle, hay, squash, watermelons, habañero peppers
Cameron	406,220	1,276.5	Agribusinesses, tourism, seafood processing, manufacturing, government/services	South Padre Island, fishing, hunting, water sports, historic sites, Palo Alto Visitors Center, state parks, wildlife refuge, recreational vehicle center	Cotton, grain sorghums, vegetables, sugar cane, wholesale nursery plants, cattle, aquaculture
Hidalgo	774,769	1,582.9	Food processing and shipping, other agribusinesses, tourism, mineral operations	Winter resort, retirement area, fishing, hunting, Mexico gateway, historic and natural sites, museums, agricultural shows	Sugar cane, grain sorghum, citrus, vegetables, cotton, cattle
Starr	60,968	1,229.1	Vegetable packing, other agribusiness, oil processing, tourism, government/services	Falcon Reservoir activities, hunting, access to Mexico, historic sites, grotto at Rio Grande City, Roma Fest in November	Cattle, vegetables, cotton, sorghum
Webb	250,304	3,375.6	International trade, manufacturing, tourism, government/services, natural gas, oil	Tourist gateway to Mexico, hunting, fishing, Lake Casa Blanca Park, water recreation, historic sites, Museum of the Republic of the Rio Grande, Fort McIntosh, minor league baseball, hockey, Washington's Birthday celebration	Onions, melons, nursery crops, cattle, horses, goats, mesquite
Willacy	22,134	590.6	Agribusiness, oil, government/services	Fresh and saltwater fishing, hunting, tourism	Cotton, sorghum, corn, vegetables, sugar cane, cattle, horses, goats, hogs
Zapata	14,018	1058.0	Natural gas, oil, ranching, Falcon Reservoir activities, government/services	Lake, state park, Dolores Hacienda site, rock hunting, hang gliding, wildlife hunting	Cattle, onions, cantaloupes, melons, goats

(Sources: TSHA, 2018b; USCB, 2019a, 2019b)

B. Water Resources

Ground water and surface water resources in the seven counties of the potential program area can be affected by weather events, such as hurricanes, drought, water impairment, and ongoing residential population expansion (Combs, 2014). Nearly all major Texas cities are vulnerable to flash-flooding or Gulf Coast hurricanes (FEMA, 2019). Nonetheless, due to a lack of precipitation much of southern Texas is currently experiencing abnormally dry to drought conditions (see figure 2) (Blunden, 2019). Records indicate that the climate of Texas is highly variable, and that droughts of notable duration and/or intensity could occur in the future. Given that history, as well as a projected decline in natural water resources, Texas plans to continue water conservation efforts, even in non-drought conditions. (TWDB, 2017). The potential Mexfly program area relies on ground and surface water for most drinking and irrigation needs.

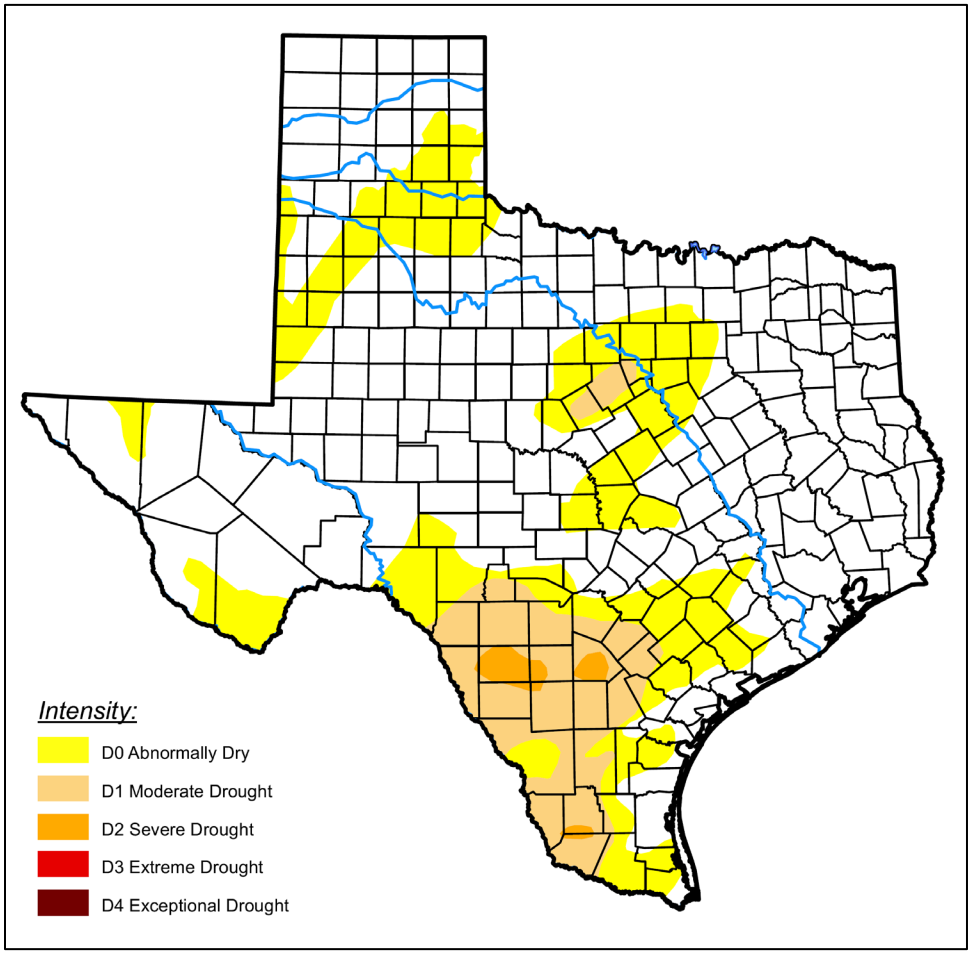


Figure 2. Drought conditions in Texas as of March 19, 2019. (Blunden, 2019)

There are two major natural river systems in the RGV, the Rio Grande—which defines much of the international boundary between the United States and Mexico—and the Arroyo Colorado. Five of the seven counties

are bordered by the Rio Grande. The Arroyo Colorado is an ancient channel of the Rio Grande, extending from southern Hidalgo County, across Cameron County, and into Willacy County, Texas; portions of it are impaired, as defined under section 303(d) of the Clean Water Act. The U.S. Environmental Protection Agency (EPA) defines impaired waters as "waterways that are too polluted or otherwise degraded to meet the water quality standards set by States, territories or authorized tribes in the U.S." (EPA, 2018). 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 lower RGV relies on ground and surface water for most drinking and irrigation needs.

The seven counties in the potential program area are associated with three Texas-designated water basins. Brook, Cameron, Hidalgo, Starr, and Willacy Counties occupy part of the Nueces-Rio Grande Coastal Basin. Figure 3 shows how the Nueces-Rio Grande Coastal Basin is bounded on the north by the Nueces River Basin (Webb County), on the south and west by the Rio Grande Basin (Hidalgo, Starr, Webb and Zapata Counties), and on the east by bays and other outlets to the Gulf of Mexico (TCEQ, 2017). Table 4 shows the distance between the proposed Mexfly program and water resources of potential concern.

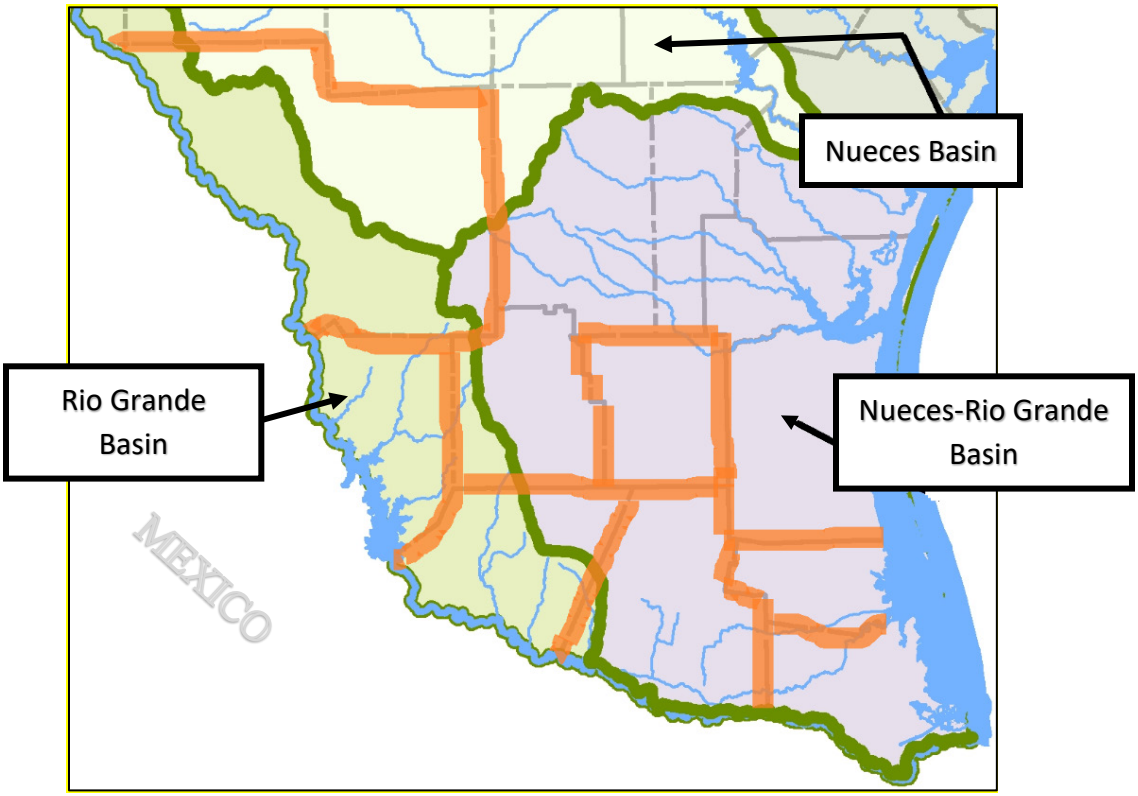


Figure 3. Major water basins in the potential Mexfly program area. The seven Texas counties in the potential program area are outlined in orange. (TCEQ, 2017)

Table 4. Proposed Program Areas in Relation to Certain Water Resources.*

Type of Resource	Edinburg Program (Distance Rounded Off to Nearest Tenth of a Mile)	Zapata Program (Distance Rounded Off to Nearest Tenth of a Mile)
Gulf of Mexico	From nearest quarantine boundary, 49.0	From nearest quarantine boundary, 121.0
Watersheds	Within treatment cores and quarantine • Upper Pilot Channel-Laguna Madre HUC 12 ID 121102080300	Within treatment cores and quarantine • Chapote Creek-Falcon Reservoir HUC 12 ID 130800030505 • Arroyo Cabeza de Vaca-Falcon Reservoir HUC 12 ID 130800030603 Within quarantine only • Canada Honda HUC 12 ID 130800030601 • Arroyo Loma Blanca-Falcon Reservoir HUC 12 ID 130800030604
Wetlands	Within treatment cores and quarantine • Freshwater emergent • Freshwater forested/shrub • Freshwater pond • Lake • Riverine	Within treatment cores and quarantine • Freshwater emergent • Freshwater forested/shrub • Freshwater pond • Lake • Riverine
Waterbodies	Within treatment cores • Unnamed waterbody, 1.0 • Lake Jones, 2.9 • 17 streams, 0.8 to 2.5 Within quarantine • Lake Jones, 2.9 • Lake Edinburg, 4.8 • Seminary Lake, 5.4 • Donna Main Canal, 6.3 • 25 streams, 2.5 to 6.6	Within treatment cores • International Falcon Reservoir, 0.0 • Unnamed waterbody, 0.7 • El Rancho Tank, 4.9 • 39 rivers and streams, 0.1 to 3.9 Within quarantine • La Esquina Tank, 5.5 • El Medio Tank, 5.6 • El Varal Tank, 6.5 • Hondo Tank, 7.5 • 86 rivers and streams, 4.0 to 7.1
Impaired Waters	None identified for this program area	None identified for this program area

* See appendix B for data source.

In southern Texas, the spread of invasive aquatic weeds, international treaty issues, and increased demand also threaten long-term water availability (LRGVDC, 2018). Cameron, Starr, Webb, Willacy, and Zapata Counties draw the vast majority of their water from the Rio Grande, via the Amistad-Falcon Reservoir system, which is shared with Mexico. The waters of the Middle and Lower Rio Grande are managed by the International Boundary Waters Commission and Texas' Rio Grande

Watermaster. Recent studies show aquifers in Mexico's Rio Grande Watershed are overextended; growth on both sides of the border will continue to put pressure on the capabilities of both surface and ground water. The seventh county (Brooks) receives ground water supplies from the Gulf Coast Aquifer; no foreseeable water shortages are expected for this county (TWDB, 2016a, 2016b).

IV. Potential Environmental Consequences

This EA analyzes the potential environmental consequences of alternatives considered for Mexfly control and eradication. The site-specific characteristics of the Edinburg and Zapata Mexfly Programs 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 the use of specific mitigation measures. USDA APHIS will conduct any necessary additional environmental analyses if Mexfly detections lead to an expansion of the program boundary.

The features identified in chapter 3, Affected Environment, are not expected to experience direct or indirect impacts under any of the alternatives as a result of program activities. Under all of the alternatives, program operations are highly unlikely to impact soil and water features in the affected environment.

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, USDA APHIS expects substantial economic losses to growers in the United States. Crop loss could lead to commodity scarcity, higher costs for U.S. consumers, and the temporary or permanent loss of valuable local and U.S. export markets.

B. Quarantine and Commodity Certification

The quarantine actions of this alternative 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 new but necessary layer of ongoing governmental presence in the marketplace. This situation could create inspection jobs; however, it would restrict trade until the produce was inspected and certified for sale. Crop loss could lead to commodity scarcity and higher costs for U.S. consumers.

C. Preferred Alternative

This section considers to what extent implementation of the preferred alternative might affect the human environment. The preferred alternative, eradication using an IPM approach, may employ any or a combination of the following measures:

- no Federal action,
- regulatory treatment and movement control of host materials and regulated articles,
- host survey for evidence of breeding Mexflies,
- host removal,
- eradication chemical applications,
- mass trapping using food bait as an attractant, and
- SIT

The traps approved for delimiting and monitoring Mexfly populations are expected to pose little or no threat to nontarget plants and animals in the RGV; the small number of nontarget arthropods that may be caught in these traps is anticipated to have a minimal, transitory effect on the overall populations of these species. Traps are placed out of reach of the general public; trap placement might constitute some small risk to applicators, but adherence to proper safety procedures is expected to mitgate that risk. Depending on the frequency of trap placement and monitoring, slight soil impacts could result from vehicular and foot traffic. No adverse impacts are expected to air or water quality from the use of Mexfly program traps.

Implementation of “no Federal action” and quarantine and commodity certification are not expected to result in impacts on the environment other than described for alternatives A and B at the beginning of this chapter. Therefore, the discussion in the remainder of chapter 4 will focus on the eradication measures of the preferred alternative.

1. Human Health

The principal concerns for human health are related to potential program use of chemical pesticides, including spinosad protein bait and MB. Factors that affect 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 the environmental fate for a particular pesticide.

Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. The Mexfly eradication program may employ ground-based targeted applications of spinosad combined with a protein bait, and MB (as a fumigant). Workers who mix, load, and apply pesticides, and members of the public who live in or visit a Mexfly eradication area, are the potentially exposed human populations. Based on the proper use of personal protective equipment and engineering control, exposure for program workers is not expected. Based on program methods of application and the impact of mitigation measures through program practices, exposure to the general public is not expected.

A standard 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.

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

Spinosad is toxic to specific invertebrate species, but has low toxicity to humans and other mammals (USDA 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. The program's method of spinosad bait spray application yields a low probability of exposure and risk to workers and the general public. Commercial applications, should they become necessary, will be applied to properties owned by commercial growers and producers where exposure to the general public is unlikely. Residential neighborhoods and other areas of public traffic within the Mexfly eradication program receive only ground-based, targeted, foliar applications.

Spinosad bait applications in Texas occur at 7- to 10-day intervals for three Mexfly life cycles. The potential for exposure to the general public after spinosad application is low because spinosad is not persistent in the environment (a half-life of 2.0 to 11.7 days on foliage). If spinosad 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. An additional summary of the environmental fate of program pesticides is discussed in the Environmental Quality section (4.C.4) of this EA.

USDA 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 (USDA APHIS, 2001).

The analyses and data of EIS2 and EIS1, 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 EIS2 and EIS1 (USDA APHIS, 2008, 2001) and the human health risk assessments (USDA APHIS, 2014, 1999, 1998a) for more detailed information relative to human health risk.)0

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. Because the potential pesticide toxicity is reduced by dilution during the storm's water and air movement, the destruction or relocation of traps and treatments due to weather events is unlikely to result in adverse impacts to the human environment.

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 (A) the no action alternative nor (B) the quarantine/commodity certification alternative is expected to eliminate Mexfly as readily, or as effectively, as the preferred alternative. Implementation of alternatives A and/or B 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.

2. Other Aspects of the Human Environment

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.

USDA representatives discussed fruit fly eradication efforts (among other issues) with the Tribal Administrator for the Kickapoo Traditional Tribe of Texas in 2013. At that time, the Texas Kickapoo Indian Reservation in Maverick County included 125 acres of trust land along the Rio Grande, an additional 13,000 acres in Maverick County, and an interest in a 9,000-acre cattle ranch in Spofford, Texas. While conducting scoping for a Cattle Fever Tick Eradication Program Environmental Impact Statement (USDA APHIS, 2018e), the Tonkawa Tribe of Oklahoma indicated their interests extend only to the disposition of artifacts that may be inadvertently uncovered (R. Duhaime, personal communication, 01/30/2014). The proposed action will not disturb the ground, so it is unlikely to affect Native American sites or artifacts. If USDA APHIS discovers any archaeological resources, it will notify the appropriate individuals. If there is an ongoing presence of fruit flies that leads to the expansion of the program activities onto Tribal lands, program officials will initiate consultation with the governing Tribal authorities and local Tribal Historic Preservation Officers before taking further action. USDA APHIS will continue to work closely with the County Historical Commission Chairs in the various counties and Tribal entities, including The Kickapoo Traditional Tribe of Texas and the Tonkawa Tribe of Indians of Oklahoma.

The National Historic Preservation Act of 1966, as amended (16 U.S.C. §§ 470 et seq.), requires Federal agencies to consider the impact of their proposed actions on properties in, or eligible for inclusion in, the National Register of Historic Places (36 CFR parts 63 and 800). The visual resources for the listed counties in Texas include any buildings, street patterns and road characteristics, viewsheds, and vistas. The visual resources also include the rangeland and pastures serving as habitat for animals. In general, these counties are of minimal recreational or scenic interest except for areas directly along the Rio Grande River. Hunting occurs in some areas. Fruit fly eradication program activities do not use heavy equipment that creates noise levels requiring auditory protection. There will not be any ground disturbance. Any visual, atmospheric, or auditory effects during application of program chemicals will be limited in duration, intensity, and area. USDA APHIS' program activities will not alter, change (restore or rehabilitate), modify, relocate, abandon, or destroy any historic buildings, edifices, or nearby infrastructure; therefore, Agency program activities will not directly or indirectly alter

characteristics of a historic property that qualify it for inclusion in the National Register of Historic Properties.

USDA APHIS consulted with the State Historic Preservation Office (SHPO) for the 2014, 2016, 2017, and 2018 pest programs in the Lower Rio Grande Valley. For those prior actions, the SHPO's office concurred with USDA APHIS' finding that historic properties would not be affected by the proposed action. Currently, the Texas Historical Commission lists one National Register of Historic Places property in Brooks County, 29 locations in Cameron County, 22 in Hidalgo County, 9 in Starr County, 9 in Webb County, 2 in Willacy County, and 6 in Zapata County (THC, 2019). The Commission also lists two Historic Texas Cemeteries in Brooks County, 17 cemeteries in Cameron County, 14 in Hidalgo County, 2 in Starr County, 3 in Webb County, 2 in Willacy County, and 1 in Zapata County (THC, 2019). Cemeteries generally have non-host vegetation among the graves, but may be surrounded by hosts in the viewshed. Several locations are historic battlefields and ranches. The remaining locations generally consist of a variety of buildings that may have surrounding landscaping with host plants (e.g., courthouses, schools, historic districts, and period dwellings) (THC, 2019).

USDA APHIS considered all of the listed historic places in each county associated with the current action because of the potential for expansion of the quarantine area as additional detections occur, or contraction of the quarantine area as control measures become effective. Table 5 lists the considered locations in each county. It does not individually identify Historic Texas Cemeteries which constitute a group of sites united by their similar landscape features.

In general, USDA APHIS' fruit fly eradication programs are compatible with the preservation of historic sites because USDA APHIS discretely integrates control activities into the site; these activities do not disturb the ground, and the treatments do not affect human-made structures. USDA 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. USDA APHIS will not conduct aerial chemical applications; spraying will be ground-based, directly targeting foliage, which may include hand-spraying with a backpack sprayer. Surveillance trapping and fruit stripping by hand may occur. If USDA APHIS discovers any archaeological resources, it will notify the appropriate individuals.

Table 5. Historic Properties in Select Counties in Texas.

County in Texas	Names of Listed National Register Property
Brooks	• Brooks County Courthouse
Cameron	• Brazos Santiago Depot • Samuel Wallace Brooks House • Browne-Wagner House • Brownsville City Cemetery and Hebrew Cemetery • Cameron County Courthouse • Old Cameron County Jail • Augustine Celaya House • Celaya-Creager House • Miguel Fernandez Hide Yard • Fernandez and Laiseca Building • Fort Brown • Garcia Pasture Site • Hicks-Gregg House • Immaculate Conception Church • La Madrilena • La Nueva Libertad • M.E. Garcia and Estela Cueto House • Manautou House • McNair House • Morris-Browne House • Old Brulay Plantation • Palmito Ranch Battlefield • Palo Alto Battlefield • Point Isabel Lighthouse • Resaca de la Palma Battlefield • Southern Pacific Railroad Passenger Depot • Charles Stillman House • The Gem
Hidalgo	• Border Theater • Casa de Palmas • Cine El Rey • Cortez Hotel • El Sal Del Rey Archeological District • John Shary Building • La Lomita Historic District • Lomita Boulevard Commerical Historic District • Louisiana-Rio Grande Canal Company Irrigation System • M&J Nelson Building • Mary S. and Gordon Griffin House • McAllen Ranch • Sam and Marjorie Miller House • Mission Canal Company Second Lift Pump House • Mission Citrus Growers Union Packing Shed • Oblate Park Historic District • Old Hidalgo Courthouse and Buildings • Old Hidalgo School • Rancho Toluca • Roosevelt School Auditorium and Classroom Addition • Teatro La Paz • Valley Fruit Company

County in Texas	Names of Listed National Register Property
Starr	• Fort Ringgold Historic District • Fred and Nell Kain Guerra House • LaBorde House, Store, and Hotel • Mifflin Kenedy Warehouse and Old Starr County Courthouse • Rio Grande City Downtown Historic District • Roma Historic District • Roma-San Pedro International Bridge • Yzaguirre-Longoria House • Silverio de la Pena Drugstore and Post Office
Webb	• Barrio Azteca Historic District • Fort McIntosh • Hamilton Hotel • Laredo US Post Office, Courthouse and Custom House • Los Ojuelos • San Augustin de Laredo Historic District • San Jose de Palafox Historic District • U.S. Inspection Station • Webb County Courthouse
Willacy	• Old Lyford High School • Willacy County Courthouse
Zapata	• Corralitos Ranch • Dolores Nuevo • Dolores Viejo • San Francisco Ranch • SanYgnacio Historic District • Trevino-Uribe Rancho

(Source: THC, 2019)

Federal agencies identify and address the disproportionately high and adverse human health or environmental effects of its proposed activities, as described in Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." USDA 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.

Human populations in the identified counties include residents, farmers, and USDA APHIS employees. Under all of the alternatives, humans will vary in the extent of their exposure to USDA APHIS program activities. Residents include, but are not limited to, adults and children living in colonias. Exposure to fruit fly program activities is unlikely for most residents during the course of their normal activities. Increased risk of exposure occurs when humans are in areas where surveillance trapping occurs, such as when children play outside of buildings, or adults exercise outdoors near the traps. Fruit fly traps generally are not accessible to children or other residents because deployment occurs above the ground at a height that exceeds the reach of most adults. In general, farmers on uninfested lands are unlikely to become exposed to fruit fly eradication

activities during the course of their normal activities, however, farmers are likely to be exposed when they enter into or work in infested areas. Exposure to program activities occurs for USDA APHIS and cooperating Texas employees during the course of their work duties.

"Colonia" is a term used in the southwestern States to describe subdivisions where developers divide the land into small lots and offer housing to low-income families. Purchase of these lots occurs through a contract for a deed with a down payment and monthly payments. The title for the house is issued only after the homeowners make the final payment (TDHCA, 2018). Residents build the housing in these locations over time as they can afford materials; however, they lack potable water, adequate sewage systems, drainage, utilities, and paved roads. (TDHCA, 2018). Numerous colonias are located within the project area (THHS, 2018).

The demographics for this area of South Texas indicate the overall population has a large proportion of Hispanics, who generally have graduated high school and are not likely to speak English at home (see table 6). In general, county-level poverty estimates are not comparable to other geographic levels (State or national) because the poverty estimates may come from sample data with associated sampling errors (e.g., see table 6, footnote 2). Nevertheless, roughly 25 to 35 percent of the population in each county in the proposed program area appears to be below the poverty level. This appears to be a decrease in comparison to the data available in 2017 for the comparable Lower Rio Grande Valley counties (USDA APHIS, 2018d). When comparing the current Census Bureau information (2013–2017) to the data available in 2017 (for 2009–2013), the significance of this numerical change cannot be determined. The county averages for all of the other categories of interest were essentially unchanged or slightly increased; however, whether these changes are significant cannot be determined.

To meet the needs of these low-income and minority groups, USDA 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 by low-income or minority individuals to applied products is negligible based on the program's application methods and the product formulations.

Table 6. Select Demographics in the Program Area.

Location	Total Population[1]	Percent White	Percent Hispanic (all races)	Percent Language Other than English at Home	Percent High School Graduate or Higher	Percent Below Poverty Level[2]
State of Texas	25,145,561	79.2	39.4	35.3	82.8	14.7
Counties within Texas						
Brooks	7,223	95.4	89.8	62.0	68.1	35.0
Cameron	406,220	97.1	89.7	73.0	66.2	27.7
Hidalgo	774,769	97.0	92.2	84.3	63.7	29.5
Starr	60,968	98.7	96.3	96.4	48.8	32.0
Webb	250,304	97.6	95.5	90.6	66.7	27.3
Willacy	22,134	95.3	88.3	59.6	65.4	35.0
Zapata	14,018	98.6	94.4	90.4	55.4	30.0
County averages 2019 estimates	Not applicable	679.7/7 = 97.1	646.2/7 = 92.3	556.3/7 = 79.5	434.3/7 = 62.0	216.5/7 = 30.9
County averages 2018 estimates[3]	Not applicable	628.1/7 = 89.7	641.8/7 = 91.7	559.2/7 = 79.9	425.2/7 = 60.7	222.5/7 = 31.8

[1]Based on U.S. Census Bureau data from 2010 (Total Population) or 2013–2017 estimates for other categories, last accessed Mar. 20, 2019 https://www.census.gov/quickfacts

[2]Based on the official poverty definition that uses monetary income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps). If the total income for a family is less than the threshold, then that family (and every individual in it) is considered in poverty.

[3]Based on estimates reported in (USDA APHIS, 2018d).

Federal agencies must ensure their programs and activities are accessible to persons with limited English proficiency as directed by EO 13166. To meet this need, USDA APHIS conducts outreach to English-speaking and Spanish-speaking communities through a variety of public notices and informational brochures about fruit fly eradication program activities. USDA APHIS invites all stakeholders, including colonia ombudspersons and residents of colonias, to any public meetings. If possible within budgetary constraints, USDA APHIS will provide Spanish translations of this EA and other program information to program and Texas representatives for their use when working with the public.

Compliance with Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks" requires Federal agencies to consider a proposed action's potential effects on children. 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. Residential areas, schools, outdoor play areas, and the roads children routinely use for transit among these sites are located throughout the proposed program's counties. Generally, zoning restrictions ensure separation of agricultural areas from residential areas. This situation means children (as well as other residents) are unlikely to see or be aware of program activities, including pesticide use. The city of Edinburg appears to have more than 22 elementary schools within a treatment area (up to 2 miles from the detection site), while only 2 elementary schools appear to be within a treatment area in Zapata County. USDA APHIS finds there are more than 23 additional schools in the quarantine zone (2 to 5 miles from the detection site) in the Edinburg area, and potentially 3 schools within the quarantine zone in Zapata County. Where possible, USDA APHIS will not apply baits on school property. When pesticide applications are essential, the Agency 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 USDA APHIS applies treatments or maintains bait traps, and (2) exposure to applied pesticides is negligible.

USDA APHIS considered the potential environmental impacts of implementing the alternatives discussed in chapter 2 on Tribal interests, historical and culturally sensitive sites, minority and/or low-income communities, and children in and near 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, and loss of property. These indirect impacts may occur, to a lesser extent, under the quarantine and commodity certification alternative. USDA APHIS does not anticipate these types of adverse effects as a result of carrying out the preferred alternative's surveillance activities, trapping, SIT, and program ground-based chemical applications.

3. Nontarget Species

Potential environmental impacts of alternative A (the no action alternative) or alternative B (quarantine/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 spinosad.

Paralleling human health risk, the risk to nontarget species is related to spinosad's fate in the environment, its toxicity to the nontarget species, and its exposure to nontarget species.

Spinosad is highly toxic to invertebrates, although the likelihood of exposure (and thus, impacts) varies 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/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 EIS2 and EIS1 (USDA APHIS, 2008, 2001) and the supporting nontarget risk assessments (USDA APHIS, 2014, 2003, 1998b) for more information on risks to all classes of nontarget species.)

The sealed methods required for MB application protect nontarget species by preventing their exposure to the pesticide (USDA APHIS, 2007, 2002). Potential cumulative impacts of MB released to the global environment are considered in section 5 of this chapter (4.C.5.).

Conservation areas in the lower RGV provide important habitat for a wide variety of wildlife that cannot be seen anywhere else in the United States. The lower RGV contains numerous protected wetlands, parkland and refuges; the Padre Island National Seashore, the Laguna Atascosa National Wildlife Refuge, the Santa Ana National Wildlife Refuge, and the Lower RGV National Wildlife Refuge are within the 7-county Mexfly program area. USDA 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.

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); this promotes the conservation of migratory bird populations. On August 2, 2012, an MOU between USDA and FWS was signed to facilitate the implementation of this Executive order.

More than 500 species of birds have been documented in the lower RGV (FWS, undated; Cornell Lab of Ornithology, 2018). The lower RGV is an important migration corridor which provides suitable habitat for many bird species. (See table 6 for a list of migratory birds of conservation concern in Brooks, Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata Counties.) Birds of conservation concern are bird species, subspecies, and populations of migratory nongame birds which, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act.

USDA APHIS evaluated the proposed Mexfly program in terms of potential impact on migratory avian species. Spinosad acute and chronic toxicity to birds is low (USDA APHIS, 2014). USDA APHIS evaluated the proposed Mexfly program in terms of potential impact on migratory avian species in the program area. The targeted application of the spinosad baits to Mexfly host plants within 500 meters of Mexfly detections are usually in residential areas; the localized and direct application of spinosad baits to host plants would not result in any impacts to food of birds. Birds would not be exposed to MB treatments.

Table 6. Migratory Birds of Conservation Concern in Brooks, Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata Counties. (FWS, 2018)

Common Name	Scientific Name	Breeding Season
Altamira oriole	*Icterus gularis*	April 1–July 15
American golden-plover	*Pluvialis dominica*	Breeds elsewhere
American oystercatcher	*Haematopus palliatus*	April 15–August 31
Audubon's oriole	*Icterus graduacauda*	April 15–September 20
Audubon's shearwater	*Puffinus lherminieri*	Breeds elsewhere
Bald eagle*	*Haliaeetus leucocephalus*	October 15–July 31
Band-rumped storm-petrel	*Oceanodroma castro*	Breeds elsewhere
Black rail	*Laterallus jamaicensis*	March 1–September 15
Black skimmer	*Rynchops niger*	May 20–September 15
Black-legged kittiwake	*Rissa tridactyla*	Breeds elsewhere
Black skimmer	*Rhynchops niger*	May 20–September 15
Bonaparte's gull	*Chroicocephalus philadelphia*	Breeds elsewhere
Botteri's sparrow	*Aimophila botterii*	June 15–September 15
Bridled tern	*Onychoprion anaethetus*	Breeds elsewhere
Brown pelican	*Pelecanus occidentalis*	January 15–September 30
Buff-breasted sandpiper	*Calidris subruficollis*	Breeds elsewhere
Burrowing owl	*Athene cunicularia*	March 15–August 31
Cassin's sparrow	*Aimophila cassinii*	August 1–October 10
Chestnut-collared longspur	*Calcarius ornatus*	Breeds elsewhere
Clapper rail	*Rallus crepitans*	April 10–October 31
Common loon	*Gavia immer*	Breeds elsewhere
Common tern	*Sterna hirundo*	Breeds elsewhere
Cory's shearwater	*Calonectris diomedea*	Breeds elsewhere
Curve-billed thrasher	*Toxostoma curvirostre*	February 15–August 15
Double-crested cormorant	*Phalacrocorax auritus*	April 20–August 31
Elf owl	*Micrathene whitneyi*	May 1–July 15
Golden eagle*	*Aquila chrysaetos*	January 1–August 31
Great black-backed gull	*Larus marinus*	Breeds elsewhere
Great shearwater	*Puffinus gravis*	Breeds elsewhere
Gull-billed tern	*Gelochelidon nilotica*	May 1–July 31
Herring gull	*Larus argentatus*	April 20–August 31
Hooded oriole	*Icterus cucullatus*	April 20–August 15
Hudsonian godwit	*Limosa haemastica*	Breeds elsewhere

Common Name	Scientific Name	Breeding Season
King rail	*Rallus elegans*	May 1–September 5
Lark bunting	*Calamospiza melanocorys*	Breeds elsewhere
Le Conte's sparrow	*Ammodramus leconteii*	Breeds elsewhere
Lesser yellowlegs	*Tringa flavipes*	Breeds elsewhere
Long-billed curlew	*Numenius americanus*	Breeds elsewhere
Long-tailed duck	*Clangula hyemalis*	Breeds elsewhere
Magnificent frigatebird	*Fregata magnificens*	Breeds elsewhere
Manx shearwater	*Puffinus puffinus*	April 15–October 31
Marbled godwit	*Limosa fedoa*	Breeds elsewhere
Mountain plover	*Charadrius montanus*	Breeds elsewhere
Nelson's sparrow	*Ammodramus nelsoni*	Breeds elsewhere
Northern gannet	*Morus bassanus*	Breeds elsewhere
Parasitic jaeger	*Stercorarius parasiticus*	Breeds elsewhere
Pomarine jaeger	*Stercorarius pomarinus*	Breeds elsewhere
Prothonotary warbler	*Protonotaria citrea*	April 1–July 31
Red-breasted merganser	*Mergus serrator*	Breeds elsewhere
Reddish egret	*Egretta rufescens*	March 1–September 15
Red-breasted merganser	*Mergus serrator*	Breeds elsewhere
Red-necked phalarope	*Phalaropus lobatus*	Breeds elsewhere
Ring-billed gull	*Larus delawarensis*	Breeds elsewhere
Royal tern	*Thalasseus maximus*	April 15–August 31
Seaside sparrow	*Ammodramus maritimus*	May 10–August 20
Semipalmated sandpiper	*Calidris pusilla*	Breeds elsewhere
Short-billed dowitcher	*Limnodromus griseus*	Breeds elsewhere
Sooty tern	*Onychoprion fuscatus*	March 10–July 31
Sprague's pipit	*Anthus spragueii*	Breeds elsewhere
Surf scoter	*Melanitta perspicillata*	Breeds elsewhere
Swallow-tailed kite	*Elanoides forficatus*	March 10–June 30
Varied bunting	*Passerina versicolor*	April 25–September 30
Whimbrel	*Numenius phaeopus*	Breeds elsewhere
White-winged scoter	*Melanitta fusca*	Breeds elsewhere
Willet	*Tringa semipalmata*	April 20–August 5
Wilson's plover	*Charadrius wilsonia*	April 1–August 20

*Also protected under the Bald and Golden Eagle Protection Act.

In a July 2015 concurrence letter for Endangered Species Act (ESA) consultation, FWS made recommendations regarding the protection of migratory birds. 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 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 threatened or endangered species or result in the destruction or adverse modification of critical habitat.

There are 19 federally listed species in Brooks, Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata Counties: ocelot (*Leopardus pardalis*), Gulf Coast jaguarundi (*Felis yagouaroundi*), West Indian manatee (*Trichechus manatus*), northern aplomado falcon (*Falco femoralis septentrionalis*), least tern, Interior population (*Sterna antillarum*), piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), 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*), Texas hornshell (*Popenaias popei*), ashy dogweed (*Thermophylla tephroleuca*), South Texas ambrosia (*Ambrosia cheiranthifolia*), Texas ayenia (*Ayenia limitaris*), Walker's manioc (*Manihot walkerae*), star cactus (*Astrophytum asterias*), and Zapata bladderpod (*Lesquerella thamnophila*) (FWS, 2019).

USDA APHIS prepared a programmatic biological assessment (BA) for program activities in Cameron, Hidalgo, and Willacy Counties that was submitted to FWS in 2008, and received a concurrence letter dated July 31, 2008. Since then, this programmatic consultation has been updated yearly to include any new listed species or critical habitat in the program counties. In 2016, USDA APHIS submitted a BA to FWS to add Webb and Zapata Counties to the programmatic consultation; Brooks and Starr Counties were added in 2017.

USDA APHIS coordinates with FWS, Texas Coastal Ecological Services Field Office in Houston, Texas, and the Alamo Ecological Services sub-office before implementing Mexfly program activities. FWS reviews maps of the quarantined area, and notifies USDA APHIS if listed species are present in the program area. If listed species are present, USDA

APHIS implements protection measures for those species, as described in the most recent programmatic BA (USDA APHIS, 2018f). For the quarantine area in the Edinburg area of Hidalgo County, FWS reviewed a map of the area, and indicated that there are no federally listed species in the area (E. Reyes, personal communication, 03/20/2019).

4. 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 in the RGV, 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 EIS2 and EIS1 (USDA APHIS, 2008, 2001) and the risk assessments (USDA APHIS, 2014, 2003, 1999, 1998a, 1998b) for a more detailed consideration of program pesticides' environmental fates.)

Attractants in USDA APHIS fruit fly program treatments (e.g., fruit fly sex pheromone lures and food baits) have minimal affect on environmental quality, based on EPA-approved use patterns and the rapid degradation of the ingredients below (Reilly, 2003; Prokopy et al., 1992). Use of food bait as prescribed for RGV Mexfly program areas is not expected to result in impacts to environmental quality beyond those described for the chemicals listed here.

- **Spinosad** is not considered mobile in soil as 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 days. It is photodegraded quickly on soil exposed to sunlight. Spinosad is quickly metabolized by soil micro-organisms under aerobic conditions, and has a half-life of 9.4 to 17.3 days. Spinosad is not sensitive to hydrolysis, but aqueous photolysis is rapid in natural sunlight (half-life of less than 1.0 to 1.6 days), and is the primary route of degradation in aquatic systems exposed to sunlight. Under anaerobic conditions, the degradation rate is slower, between 161 and 250 days. Spinosad has a half-life of 2.0 to 11.7 days on plant surfaces. After initial photodegradation, residues are available for metabolism by plant biochemical processes. Effects from residues of individual treatments are no longer detectable in environmental substrates within a few weeks of application (USDA APHIS, 2014; Kollman, 2003).

- **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 days. The degradation half-life of MB in soil ranges from 31 to 55 days. MB has a low affinity to bind to soils; however, it is not considered a major contaminant of ground water (NPIC, 2000). The small quantities used to treat for Mexfly disperse when fumigation chambers are vented. (See section 5 of this chapter (5.C.5) regarding MB's potential cumulative impacts to the environment.)

Urban and agricultural runoff may flow directly into local waters, picking up trash, dirt, chemicals, and other contaminants along the way. If treatment is indicated where pesticides might be directly discharged into a body of water, TDA will analyze the environmental setting, establish treatment buffers, as necessary, and follow site-specific best management practices. The prescribed method of spray application directly to host plants is designed to minimize drift and runoff. Personnel applying pesticides would adhere to label directions, State and Federal laws, and recommendations of the environmental compliance staff associated with the program. Waterbody contact is not anticipated due to the targeted application methods and the environmental fate of the pesticides used in the Mexfly cooperative eradication programs.

The alternatives were compared with respect to their potential to affect environmental quality. Risk to environmental quality is considered minimal for the preferred alternative. Again, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall, with minimal adverse impacts on environmental quality. The no action alternative and the quarantine/commodity certification alternative would likely result in a 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 waterbodies are described in EIS1 (USDA APHIS, 2001).

5. Cumulative Impacts

This section considers the potential of the alternatives to cause cumulative impacts on the human environment. Taking no Federal action is expected to

result in similar cumulative impacts to those that arise from tolerating uncontrolled Mexfly infestations in the United States. Imposed quarantine and commodity certification would likely 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.

The Edinburg and Zapata Mexfly programs were examined for potential cumulative environmental impacts. The lower RGV is an area of concern for pesticide exposure from the use of pesticides on adjacent fields, in homes or gardens in the rural agricultural communities, and the urban communities in close proximity to agriculture (Belson et al., 2003; Donnelly and Cizmas, 2007).

USDA APHIS considered implementation of the preferred alternative in the context of, and in conjunction with, other pest insect eradication and quarantine projects in the potential program area (e.g., cattle fever tick and bollworm eradication efforts). These programs use pesticides with different mechanisms of toxic action; they target different pests, and are applied at different times. The nature of these differences suggests limited potential for pesticide interaction or for multiple exposures; the sum of their use by programs in the same location is, therefore, not expected 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, USDA APHIS expects a beneficial cumulative impact on the environment: from reduced Mexfly populations causing damage to fruit, and from 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. No adverse cumulative impacts are expected to result from this action.

Program pesticides approved for use against Mexfly are also prescribed treatments for other USDA APHIS fruit fly programs. At the time of preparation of this document, there is one other Mexfly quarantine in the potential program area (the Laredo region of Webb County)(USDA APHIS, 2018g). The proposed Edinburg quarantine lies approximately 73 miles from the proposed Zapata quarantine, and about 116 miles from the current Laredo quarantine. No eradication treatment cores overlap one another. (See map A-3 for an overview of Mexfly program areas in the

RGV.) Use of program pesticides in a Mexfly program that overlaps with another fruit fly 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. As the eradication program protocols for West Indian fruit fly were the same as those in use for Mexfly, no additional chemical treatments were considered necessary. Due to the passage of time and the prevailing weather conditions in southern Texas during 2018 and early 2019, no chemical residues are believed to remain from previous Mexfly programs that could result in additive or synergistic chemical effects with the proposed program's chemical applications.

No significant environmental impacts are expected to result from proper implementation of the proposed Mexfly eradication and control program. The differences in pesticide mechanisms of toxic action, targets for application, affected species and resources, and application timing between RGV Mexfly programs and other pest control programs in Texas are not likely to create significant cumulative impacts in the human environment. No cumulative impacts from pesticide applications are expected with the following active control programs in Texas (TDA, 2019a; TBWEF, 2019):

- **Asian citrus psyllid—**Quarantine over the entire State; chemical applications in the citrus-growing zone of Texas (Brooks, Cameron, Hidalgo, Jim Hogg, Kenedy, Starr, Willacy, and Zapata Counties)

- **Boll weevil—**Quarantine and chemical applications in 10 counties of southern Texas, including all 7 counties in the potential Mexfly program area

- **Exotic fruit fly species—**1 Mexfly quarantine in Webb County

- **Red imported fire ant—**Quarantine over much of the State, including all counties in the potential Mexfly program area except Zapata County

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; it is currently used in a variety of pest control efforts, including the control of fire ants, beetles, caterpillars, termites, and thrips (USDA APHIS, 2014; Merchant, 2004). Implementation of a governmental Mexfly eradication program could lead to an increase in spinosad use, and the possible overlap of program and non-program treatments.

MB is a regulatory treatment that may be used in order to move Mexfly-host materials outside the program quarantine. MB is a fumigant used to control insects, mites, rodents, plant pathogens, nematodes, termites, and weeds. Registered uses of MB have included preplanting soil fumigation; stored commodities (both raw agricultural commodities and processed foods/feeds); greenhouses; termite control; grain elevators; mills, ships, and transportation vehicles (Chin, 2003). USDA APHIS determined that use of MB as a fruit fly quarantine treatment poses negligible potential for cumulative impacts to the environment. For information on potential depletion of the ozone layer relating 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—September 2002" (USDA APHIS, 2002) and subsequent analyses, such as the "Importation of Solid Wood Packing Material, Supplement to the Final Environmental Impact Statement—October 2007" (USDA APHIS, 2007).

To avoid additive chemical impacts, the Mexfly treatment schedule is adjusted in locations where another TDA or USDA APHIS program may have scheduled similar treatments. It is uncertain how pesticides may be used by private entities in a Mexfly program area. In terms of Federal and State program activities, there are no significant cumulative impacts anticipated as a consequence of implementing the preferred alternative or its component treatment measures. Under the preferred alternative, program pesticide applications are designed to avoid overlapping treatment cores, and to prevent nontarget exposure until pesticide residues are degraded.

No reasonably foreseeable future actions have been identified that could result in incremental increases in environmental effects. Based on USDA 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 proper implementation of RGV Mexfly cooperative eradication programs.

Should the Edinburg or Zapata Mexfly infestations expand, additional actions may be implemented by the program, including additional quarantines and regulatory treatments. Evaluation of potential environmental impacts and mitigations for such impacts will be undertaken for sensitive sites identified in the new program area. No significant environmental impacts are expected to result from proper implementation of the preferred alternative within the seven RGV counties considered in this EA. The prescribed use of Mexfly program treatments is considered to pose minimal risk to the human environment, as determined in EIS2 and EIS1 (USDA APHIS, 2008, 2001), and the nontarget species and human health risk assessments (USDA APHIS, 2014, 2003, 1999, 1998a, 1998b).

V. Agencies Consulted

State Historic Preservation Officer
Texas Historical Commission
1511 Colorado Street
Austin, TX 78701

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
4700 River Road, Unit 26
Riverdale, MD 20737

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
Texas Coastal Ecological Service Field Office
3325 Green Jay Road
Alamo, Texas 78516

VI. References Cited

Belson, M., Kieszak, S., Watson, W. Blindauer, K.M., Phan, K., Backer, L., and Rubin, C., 2003. Childhood pesticide exposures on the Texas-Mexico border: Clinical manifestations and poison center use. American Journal of Public Health, 93(8): 1310-1315. Available: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447962/ [2019, Mar. 26].

Blunden, J., 2019. United States drought monitor. March 19, 2019 (Released Thursday, March 21, 2019). Valid 8 a.m. EDT. [Online]. Available: http://droughtmonitor.unl.edu/ [2019, Mar. 25].

Chin, P., 2003. Methyl bromide – 2nd Report of the hazard identification assessment review committee. HED Doc. No. 0051439. January 6, 2003. U.S. Environmental Protection Agency/HED Records Center Series 361 Science Reviews – File R058836. 35 pp.

Combs, S., 2014. Office of the Texas Comptroller of Public Accounts. Texas water report: Going deeper for the solution. 24 pp.

Cornell Lab of Ornithology, 2018. Texas eBird. Bird observations Laguna Atascosa NWR. [Online]. Available: https://ebird.org/tx/barchart?r=L129005&yr=all&m= [2019, Mar. 25].

DeAngelis, J., 2004. Spinosad is a natural insecticide. [Online]. Available: http://www.livingwithbugs.com/spinosad.html [2019, Mar. 26].

Donnelly, K.C., and Cizmas, L., 2007. Texas A&M University - Border health environmental coordination program. [Online]. Available: https://archive.epa.gov/ehwg/web/pdf/tamu_pesticide_study.pdf [2019, Mar. 26].

EIS1—See U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2001

EIS2—See U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2008

EPA—See U.S. Environmental Protection Agency

FEMA—See Federal Emergency Mangement Agency

FWS—See U.S. Fish and Wildlife Service

Federal Emergency Management Agency, 2019. News release: All Texans are at risk for floods. Release number: NR209. Release date: May 8, 2018. Last updated: March 22, 2019. 3 pp.

GOMA—See Gulf of Mexico Alliance, Coastal Community Resilience Team

Gulf of Mexico Alliance, Coastal Community Resilience Team, 2013. Texas homeowners' handbook to prepare for coastal natural hazards. March 2013. 84 pp.

Kollman, W.S., 2003. Environmental fate of spinosad. California Department of Pesticide Regulation, Environmental Monitoring Branch. [Online]. Available: http://www.cdpr.ca.gov/docs/emon/pubs/fatememo/spinosad_fate.pdf [2019, Mar. 26].

Lower Rio Grande Valley Development Council, 2018. Water resources. [Online]. Available: http://www.lrgvdc.org/water.html [2019, Mar. 26].

LRGVDC—See Lower Rio Grande Valley Development Council

Merchant, M., 2004. Spinosad: an insecticide to make organic gardeners smile. Texas Cooperative Extension, Texas A&M University/College Station, Texas: Horticulture Update. March 2004. 1 page.

NAPIS—See National Agricultural Pest Information System

National Agricultural Pest Information System, 2017. Pest Tracker. Mexican Fruit Fly (Mexfly), *Anastrepha ludens*. Available: http://pest.ceris.purdue.edu/pest.php?code=IOBMABA [2019, Mar. 26].

National Pesticide Information Center, 2000. Methyl bromide. Technical fact sheet. [Online]. Available: http://npic.orst.edu/factsheets/archive/MBtech.pdf [2019, Mar. 26].

NPIC—See National Pesticide Information Center

Prokopy, R.J., Papaj, D.R., Hendrichs, J., and Wong, T.T.Y., 1992. Behavioral responses of Ceratitis capitata flies to bait spray droplets and natural food. *Entomologia Experimentalis et Applicata*. 64: 247–257.

Reilly, S.K., 2003. Pheromones: risk assessment and decision making. U.S. Environmental Protection Agency presentation to the NAFTA Technical Working Group on Pesticides. 15 MS PowerPoint slides.

Sauls, J.W., 2008. The Texas Citrus Industry. Texas AgriLife Extension, Texas A and M University. Page updated January 7, 2008. [Online].
Available: http://aggie-horticulture.tamu.edu/citrus/l2286.htm [2019, Mar. 26].

TAMU—See Texas A & M University System

TBWEF—See Texas Boll Weevil Eradication Foundation

TCEQ—See Texas Commission on Environmental Quality

TDA—See Texas Department of Agriculture

TDHCA—See Texas Department of Housing and Community Affairs

Texas A & M University System, 2011. TR–397: Pesticide education in the coastal zone of the Arroyo Colorado watershed final report. T. Allen Berthold, Texas Water Resources Institute. 41 pp.

Texas Boll Weevil Eradication Foundation, 2019. Program information, Texas zones. [Online]. Available: https://www.txbollweevil.org/ [2019, Mar. 26].

Texas Commission on Environmental Quality, 2017. Atlas of Texas surface waters. [Searches: Introduction, Nueces River Basin, Nueces-Rio Grande Coastal Basin, Rio Grande Basin, Bays and Estuaries and Gulf of Mexico]. Last modified December 14, 2017. 15 pp.

Texas Department of Agriculture, 2019a. Regulatory programs: Plant quality: Pest and disease alerts. [Online]. Available: https://www.texasagriculture.gov/RegulatoryPrograms/PlantQuality/PestandDiseaseAlerts.aspx [2019, Mar. 26].

Texas Department of Agriculture, 2019b. School integrated pest management (IPM). [Online]. Available: http://www.texasagriculture.gov/regulatoryprograms/pesticides/structuralpestcontrolservice/schoolintegratedpestmanagement.aspx [2019, Mar. 26].

Texas Department of Housing and Community Affairs, 2018. Background on the colonias. [Online]. Available: https://www.tdhca.state.tx.us/oci/background.htm [2018, Mar. 22].

Texas Health and Human Services, 2018. Maps of colonias. [Online]. Available: https://hhs.texas.gov/about-hhs/process-improvement/office-border-affairs/colonias-projects/maps-colonias [2018, Mar. 22].

Texas Historical Commission. 2019. Texas historic sites atlas. [Online]. Available: https://atlas.thc.state.tx.us/ [2019, Mar. 27].

Texas Parks and Wildlife Department, 2017. Parents and teachers junior naturalist outdoor learning: South Texas Plains. 4 pp.

Texas Secretary of State, 2017. What is a colonia? Colonia FAQs. Directory of colonias located in Texas. [Searches for Brooks, Hidalgo, Maverick, Starr, Webb, Willacy, Zapata Counties]. 19 pp.

Texas State Historical Association, 2018a. Texas Almanac: Physical regions of Texas. [Online]. Available: http://texasalmanac.com/topics/environment/physical-regions-texas [2019, Mar. 26].

Texas State Historical Association, 2018b. Texas almanac: Counties. [Online]. Available: http://texasalmanac.com/topics/counties/home [2019, Mar. 26].

Texas Water Development Board, 2017. 2017 state water plan: Water for Texas. Includes amendment #1. Bech Bruun, TWDB Chairman. 150 pp.

Texas Water Development Board, 2016a. 2016 Rio Grande regional water plan: volume I. December 1, 2015. 553 pp

Texas Water Development Board, 2016b. 2016 approved regional water plans. Coastal bend - Regional water planning area - Region N, Executive summary and regional water plan, December 2015. 764 pp.

THC—See Texas Historical Commission

THHS—See Texas Health and Human Services

TPWD—See Texas Parks and Wildlife Department

TSHA—See Texas State Historical Association

TSOS—See Texas Secretary of State

TWDB—See Texas Water Development Board

UFL—See University of Florida

University of Florida, 2012. Mexican fruit fly—*Anastrepha ludens* (Loew) (Insecta: Diptera: Tephritidae). Publication EENY–201. Last revised March 2012. [Online]. Available: http://entnemdept.ufl.edu/creatures/fruit/tropical/mexican_fruit_fly.htm [2019, Mar. 26].

USCB—See U.S. Census Bureau

U.S. Census Bureau, 2019a. QuickFacts. Search results for six Texas counties: Brooks, Cameron, Starr, Willacy, Webb, and Zapata Counties. 4 pp.

U.S. Census Bureau, 2019b. QuickFacts. Search results for the United States; Texas; Hidalgo County, Texas; Edinburg city, Texas. 4 pp.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2019a. Edinburg, Hidalgo County, Texas MXFF. Fruit fly outbreak information needed within 96 hours. 03/18/2019. Revision A. 6 pp.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2019b. Zapata, Zapata County, Texas MXFF. Fruit fly outbreak information needed within 96 hours. 03/11/2019. 3 pp.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2019c. Weekly situation report. Anastrepha ludens. Zapata County. Zapata, Texas. Date: 03/17/2019 to 03/23/2019. 5 pp.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018a. SPRO letter. Subject: APHIS removes the Mexican fruit fly (*Anastrepha ludens*) quarantine area in Brownsville, Cameron County, Texas. For information and action. DA-2018-29. September 5, 2018.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018b. SPRO letter. Subject: APHIS removes the Mexican fruit fly (*Anastrepha ludens*) quarantine area in San Perlita, Willacy County, Texas. For information and action. DA-2018-33. September 18, 2018.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018c. SPRO letter. Subject: APHIS removes the Mexican fruit fly (*Anastrepha ludens*) quarantine in San Ygnacio area of Zapata County, Texas. For information and action. DA-2018-34. September 18, 2018.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018d. Mexican fruit fly cooperative eradication program. Rio Grande Valley, Texas. Environmental assessment, March 2018. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018e. Cattle fever tick eradication program. Tick control barrier. Maverick, Starr, Webb, and Zapata Counties, Texas. Final environmental impact statement—May 2018. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018f. Biological assessment for program to eradicate fruit flies from Brooks, Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata Counties, Texas. Update of programmatic consultation, February 2018. 15 pp.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018g. SPRO letter. Subject: APHIS establishes a Mexican fruit fly (*Anastrepha ludens*) quarantine in Laredo, Webb County, Texas. For information and action. DA-2018-42. December 3, 2018.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2014. Human health and ecological risk assessment for STATIC™ spinosad ME bait applications. March 2014. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2013. Cooperative fruit fly emergency response triggers & guidelines. 2 pp.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2009. Final Report: Animal And Plant Health Inspection Service, United States and Mexico, Lower Rio Grande Valley Mexican fruit fly eradication program review. Conducted August 2009. Expert review panel chairperson: Susan D. McCombs. 130 pp.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2008. Use of genetically engineered fruit fly and pink bollworm in APHIS plant pest control programs. Final environmental impact statement—October 2008. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2007. Importation of solid wood packing material. Supplement to the final environmental impact statement—October 2007. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2004. General reference for fruit fly programs: Tephritidae. March 2004. Prepared by Jeffrey N.L. Stibbick.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2003. Spinosad bait spray applications. Nontarget risk assessment, October, 2003. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2002. Rule for the importation of unmanufactured wood articles from Mexico, with consideration for cumulative impact of methyl bromide use. Final environmental impact statement—September 2002. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2001. Fruit fly cooperative control program, final environmental impact statement—2001. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1999. Spinosad bait spray applications. Human health risk assessment, March 1999. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998a. Human health risk assessment for fruit fly cooperative control programs. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998b. Nontarget species risk assessment for fruit fly cooperative control program. Riverdale, MD.

USDA APHIS—See U.S. Department of Agriculture, Animal and Plant Health Inspection Service

U.S. Environmental Protection Agency, 2018. Impaired waters (EPA). [Online]. Available: https://www.arcgis.com/home/item.html?id=6ca203de183c4ac68ca1e085a0cb51d1 [2019, Mar. 26].

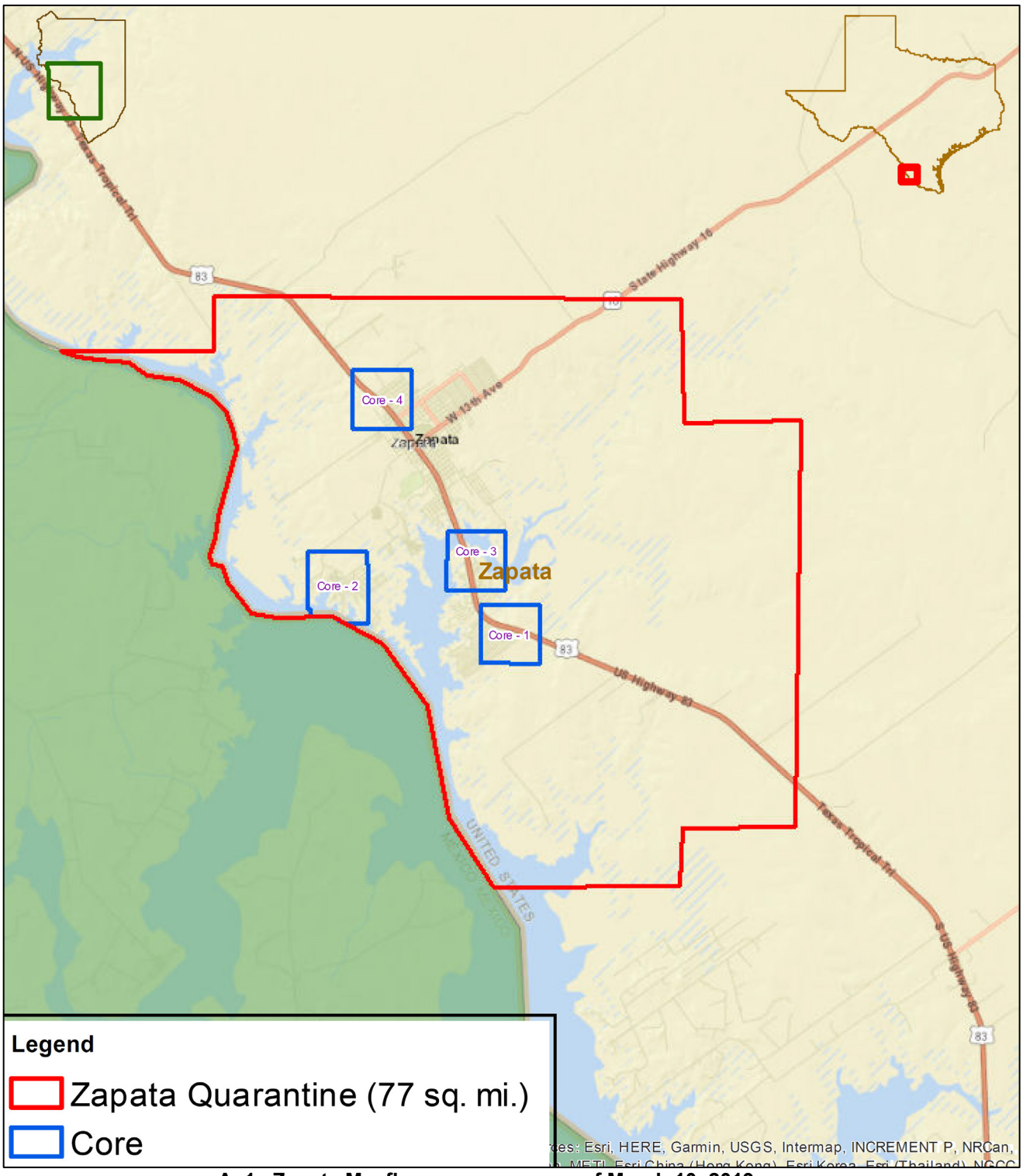
U.S Fish and Wildlife Service, 2019. Texas Coastal Ecological Services Field Office. Official species list. Consultation code: 02ETTX00-2019-SLI-1053. Event Code: 02ETTX00-2019-E-02160. 12 pp.

U.S. Fish and Wildlife Service, 2018. Information for planning and conservation. Migratory bird species in Brooks, Cameron, Hidalgo, Starr, Webb, Willacy and Zapata Counties, Texas. Report generated March 19, 2018. 12 pp.

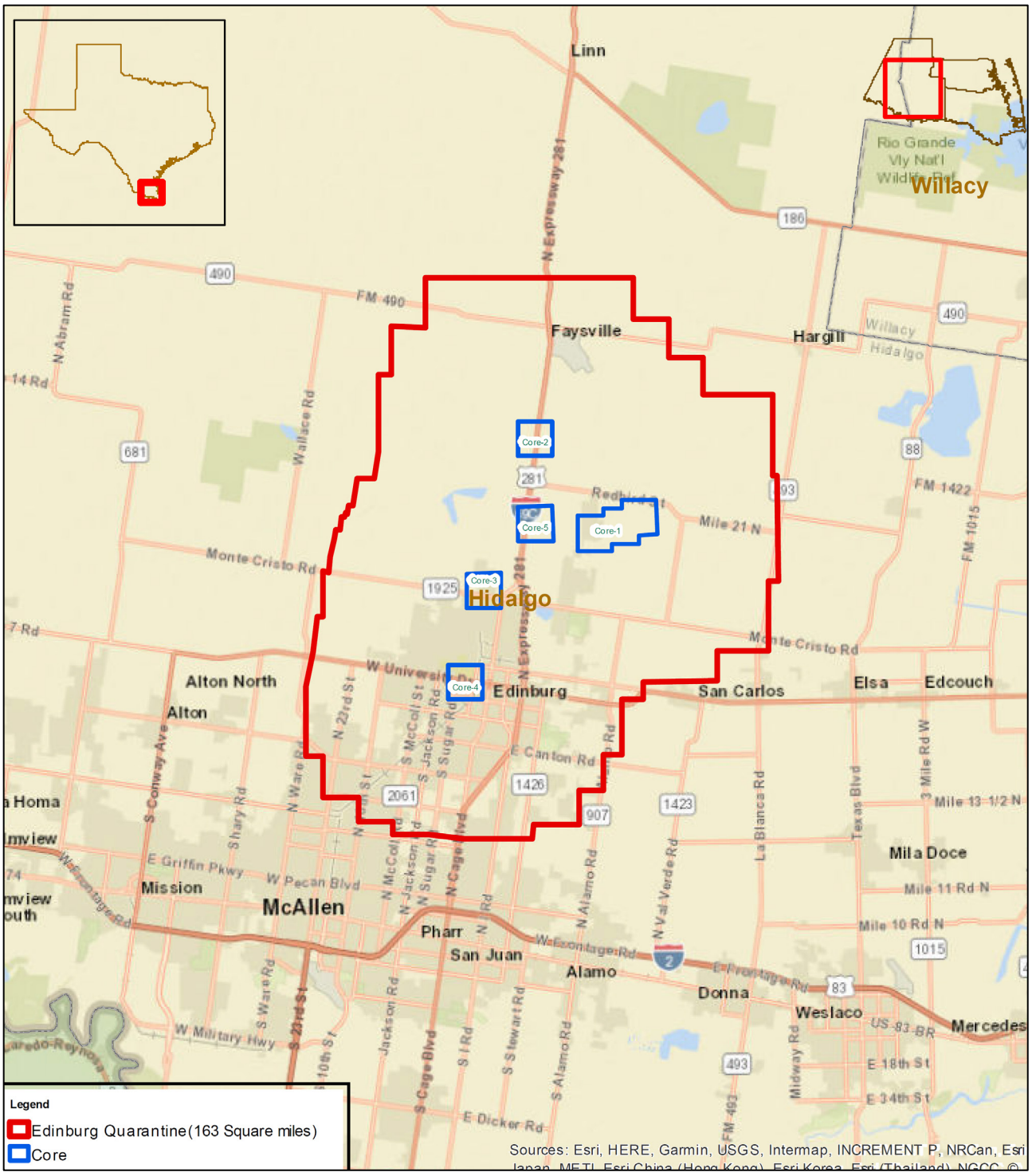
U.S. Fish and Wildlife Service, undated. Lower Rio Grande Valley National Wildlife Refuge – birds. [Online]. Available: http://www.fws.gov/uploadedFiles/Birds_LRGV-508.pdf [2019, Mar. 25].

Vigness, D.M., and Odintz, M., 2015. Texas almanac: Rio Grande Valley. Handbook of Texas online. Published by the Texas State Historical Association. [Online]. Available: http://www.tshaonline.org/handbook/online/articles/ryr01 [2019, Mar. 26].

Appendix A. Rio Grande Valley Region of Texas: Mexfly Program Areas as of March 22, 2018.

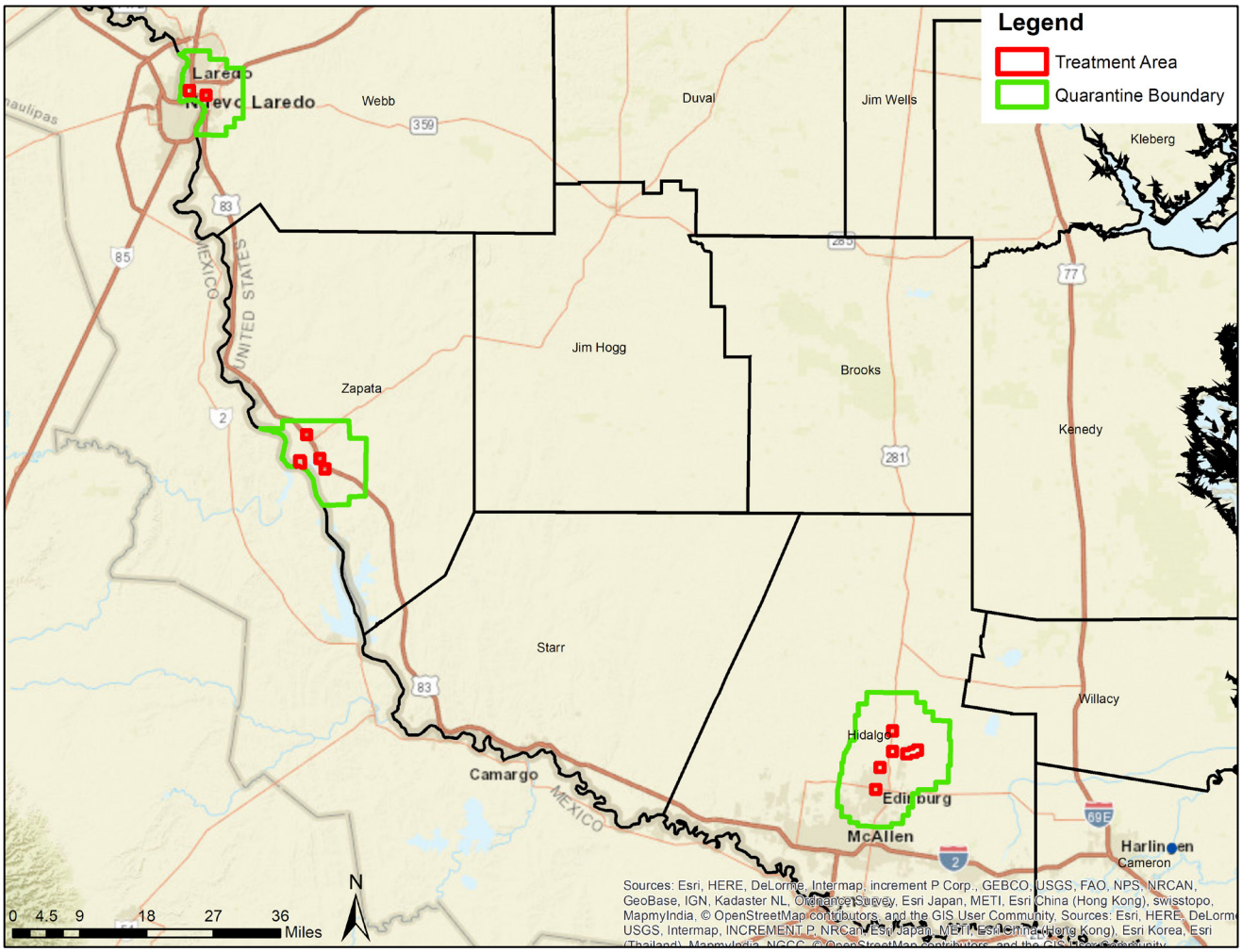


A–1. Zapata Mexfly program area as of March 10, 2019.
Source: USDA APHIS



A–2. Edinburg Mexfly program area as of March 10, 2019.

Surce: USDA APHIS



A–3. Active Mexfly program areas as of March 22, 2019.

Source: USDA APHIS

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

USDA APHIS accessed the following resources March 19-27, 2019.

Web-Based Mapping Application for Environmental Assessments

- **NepaAssist:** http://nepassisttool.epa.gov/nepassist/entry.aspx

For Information on—

- **Airports:** www.googlemaps.com
- **Bing Maps Road:** http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html
- **Boundaries:** http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Boundaries/MapServer
- **Crop Data:** http://nassgeodata.gmu.edu/CropScape/
- **Colonias:** https://services.arcgis.com/0qnXZkKDQOva53n2/arcgis/rest/services/Initial_Colonias_Map_for_ARC_GIS/FeatureServer
- **Farmers Markets:** https://www.ams.usda.gov/local-food-directories/farmersmarkets
- **Historic Sites:** http://www.nps.gov/nr/
- **Land Use:** http://nassgeodata.gmu.edu/CropScape/
- **Local Parks:** www.googlemaps.com
- **National Wildlife Refuges:** http://viewer.nationalmap.gov/
- **Native American Areas:** http://viewer.nationalmap.gov/ and http://viewer.nationalmap.gov/
- **Nonattainment Areas:** http://geoplatform2.epa.gov/arcgis/rest/services/PM_Designations_Mapping/Nonattainment_Areas/MapServer

- **Nurseries and Garden Centers:** www.googlemaps.com
- **Organic Farms:** http://www.ams.usda.gov/AMSv1.0/nop
- **Places:** http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Places/MapServer
- **Pesticides**: https://cida.usgs.gov/warp/about/
- **Seaports:** www.googlemaps.com
- **Transportation:** http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Transportation/MapServer
- **Tribal Ceded Lands/Tribal Connections:** http://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=fe311f69cbld43558227d73bc34f3a32
- **USFWS (Critical Habitat, Migratory Birds):** http://ecos.fws.gov/crithab and http://ecos.fws.gov/ipac/
- **Water:** http://epamap9.epa.gov/arcgis/rest/services/NEPAssist/Water/MapServer
- **Wetlands:** http://nassgeodata.gmu.edu/CropScape/