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Mexican Fruit Fly Cooperative Eradication Program

Rio Grande Valley, Texas

Supplemental Environmental Assessment, March 2020

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I. Need for the Proposal

The Mexican fruit fly (Mexfly), *Anastrepha ludens* (Loew), is a Federally-regulated invasive pest species. 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 repeatedly introduced into the United States since its first detection in 1927 (TDA, 2020; NAPIS, 2020); eradication efforts coordinated by Federal and State authorities have so far prevented Mexfly from becoming an established pest. The State of Texas achieved Mexfly pest-free status in 2012; since then any detections of Mexfly incursion in Texas have been treated as actionable.

USDA APHIS' cooperation with the State of Texas in a new Mexfly eradication program was triggered in January 2020 by laboratory identification of a gravid wild Mexfly found in the Rio Grande Valley (RGV) region. USDA APHIS conducted an environmental assessment of the proposed program ("January 2020 EA"); a finding of no significant impact was signed on February 5 (USDA APHIS, 2020a) allowing the RGV Mexfly Program to proceed. Subsequent indications of multiple burgeoning Mexfly populations in the RGV (USDA APHIS 2020b; see map in appendix A) necessitated unusually rapid expansion of program area activities, prompting the Texas Department of Agriculture to request that USDA APHIS add a soil drench option for suitable locations inside Mexfly quarantine boundaries. This supplemental environmental assessment (EA) summarizes USDA APHIS' assessment of the potential environmental impacts from use of a soil treatment proposed for the RGV Mexfly Program. This document supplements the January 2020 EA (USDA APHIS, 2020a), which is incorporated in this document by reference.

Many Mexfly-host plant species grow in the RGV, which increases the potential environmental impact of this new Mexfly infestation. The RGV Mexfly Program is currently active in Cameron, Hidalgo, Webb and Willacy Counties. The potential program area consists of seven counties: Brooks, Cameron, Hidalgo, Starr, Webb, Willacy and Zapata Counties.

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 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)).

After a comprehensive review of existing and potential action alternatives USDA APHIS published a new environmental impact statement (EIS1) in November 2018 for its fruit fly cooperative control programs (USDA APHIS, 2018a). EIS1 addresses technological and scientific advances made in the 17 years since the previous environmental impact statement was published, and incorporates feedback received during the public comment period. EIS1 considers fruit fly risks and mitigations at the programmatic level. This document incorporates the contents of EIS1 by reference.

This supplemental EA analyzes the environmental consequences of an alternative considered for Mexfly eradication, and analyzes, from a site-specific perspective, environmental issues relevant to this particular program. USDA APHIS' fruit fly chemical risk assessments (USDA APHIS, 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2003) discuss and comprehensively analyze the eradication measures being considered for implementation in the potential program area. This EA summarizes pertinent information, and incorporates those documents by reference. (Environmental documentation for USDA APHIS' fruit fly control programs is available 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 alteration of the RGV Mexfly Program include (A) no action, and (B) the preferred alternative. Under either of these alternatives, the RGV Mexfly Program would continue to employ regulatory controls, high-density trapping, host survey, foliar bait

spraying, and biological control (sterile insect technique (SIT). These alternatives and their component methods are discussed in the January 2020 EA and in EIS1 (USDA APHIS, 2020a, 2018a). (For details about the Texas State program to control Mexfly, please use the following link: Texas Mexfly program information.)

A. No Action

Under the no action alternative, the RGV Mexfly program would continue unchanged.

B. Soil Treatment Option (Preferred Alternative)

USDA APHIS' preferred alternative for the RGV Mexfly Program is the addition of a lambda-cyhalothrin soil drench to the IPM strategy already in place. Previously, USDA APHIS and TDA's cooperative Mexfly eradication programs had no soil treatment option and relied primarily on surveillance, trapping, foliar bait sprays, host removal, SIT, and regulated host movement.

Program areas and activities to control Mexfly infestations are centered on detection sites. USDA APHIS' cooperative programs to eradicate exotic fruit fly populations use established procedures and treatments designed with the species' life stages in mind. RGV Mexfly Program treatments currently target adult flies and immature larvae. Because of the unusual and widespread Mexfly population explosion in the RGV during January 2020, USDA APHIS proposes to add an eradication treatment targeting larger larval stages that develop in the soil under fruiting host plants.

Warrior II with Zeon Technology® contains the active ingredient (a.i.) lambda-cyhalothrin, a synthetic pyrethroid lethal to Tephritid species such as Mexfly. Targeted soil treatments with Warrior II prevent Mexfly larvae from maturing into adults and breeding. Warrior II is registered by the U.S. Environmental Protection Agency (EPA) as a Restricted Use Pesticide due to its toxicity to fish and aquatic organisms. It must be used only by certified applicators, or persons under their direct supervision, and only for those uses covered by the applicator's certification (USDA APHIS, 2018d).

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 ensures 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) are approved by EPA for each pesticide use pattern in fruit fly program applications. In 2019 EPA issued a five-year

special local need label (SLN) for in-State use of Warrior II with Zeon Technology® in Texas eradication programs for non-indigenous exotic fruit fly pests of the Tephritidae family (Syngenta, 2019).

This SLN label authorizes use of Warrior II as a soil drench anywhere in the state of Texas on the following sites: (a) within the drip line of fruit-bearing host plants that are located within a 400 meter radius from a fruit fly larval or mated female find, and (b) as a regulatory treatment on host nursery stock and to soil around nursery stock to allow nursery stock to move out of the quarantine area (Syngenta, 2019). The RGV Mexfly Program would apply Warrior II only to the soil within the dripline of Mexfly host plants on residential property and in commercial citrus groves. No soil drenches would be made in wilderness or conservation areas (R. Johnson, personal communication., 03/27/2020).

Recommended protection measures are incorporated in the program as needed. Residents whose property will be treated with soil drenches should be notified in writing a minimum of 24 hours prior to treatment. (Treatment may begin immediately in situations where residents grant permission to do so.) Treatment without prior notification may be necessary on a small number of properties, but efforts must be made to contact residents if treatment is warranted. Workers must remove and destroy all fruit from fruit-bearing host plants where soil drench applications occur (Syngenta, 2019).

Under the preferred alternative, Warrior II is applied at a rate of 0.56 fl. oz. of product in 15.5 gallons of water/1000 sq. ft (or 0.4 lbs. a.i. per acre). Treatments are done by or under the supervision of a licensed state or federal employee. Prior to application, soil to be treated must be watered to allow adequate penetration of the pesticide mixture. In case absorption is slow, applicators will remain on-site until the application has been absorbed into the soil (Syngenta, 2019).

III. Affected Environment

The January 2020 EA (USDA APHIS, 2020a) discusses pertinent physical and demographic features of the RGV Mexfly Program potential program area. Mexfly program areas outside counties currently included in the program will be identified on an as-needed basis as infestations and incursions occur. If Mexfly detections warrant and conditions for lambda-cyhalothrin application are suitable, soil in any of the counties of the program might receive Warrior II treatments.

IV. Potential Environmental Consequences

This EA analyzes the potential environmental consequences of using a lambda-cyhalothrin soil drench for Mexfly control and eradication. The site-specific characteristics of the potential seven-county RGV Mexfly Program area were considered with respect to the potential of the preferred alternative to affect human health, nontarget species (including threatened and endangered species), and environmental quality. Potentially sensitive sites were identified, considered, and accommodated through special selection of eradication methods, and 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.

A. No Action

Continuation of the RGV Mexfly Program as currently defined is highly unlikely to impact soil and water features in the affected environment. 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. Preferred Alternative

This section considers to what extent implementation of the preferred alternative might affect the human environment. Under the preferred alternative, the RGV Mexfly Program would have the additional option to use a prescribed lambda-cyhalothrin soil drench for Mexfly eradication. Soil drenching would occur within the drip line of fruit-bearing host plants, or host nursery stock. Because of the pesticide's toxicity to humans and other nontarget species, applicators must see that no surface liquid remains after treatment, and ensure that all fruit from treated plants is destroyed (Syngenta, 2019).

1. Human Health

The principal concerns for human health are related to potential program use of the chemical pesticide, including lambda-cyhalothrin. 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.

The majority of reported exposure incidents involve the use of lambda-cyhalothrin products at home (indoors or outdoors) or under an occupational setting (mixing, loading, applying, reentering the treated

grounds, inadvertent exposure). The most frequently reported symptoms were associated with dermal, respiratory, neurological, gastrointestinal, and ocular systems. The EPA concluded that there is no evidence that lambda-cyhalothrin induces any endocrine disruption, and classifies lambda-cyhalothrin as moderately toxic but not likely to be carcinogenic to humans (USDA APHIS, 2018d).

Approximately 77 percent of the Warrior II formulation contains ingredients other than lambda-cyhalothrin. Petroleum solvent and titanium dioxide are the two identified ingredients in this category; their percentages are not specified. The manufacturer's safety data sheet indicates that repeated exposure to petroleum solvent may cause skin dryness or cracking, irritation to the eyes, nose, throat, and lungs, or depression of the central nervous system. If swallowed, petroleum solvent may be aspirated and cause lung damage. The safety data sheet also indicates that titanium dioxide is considered possibly carcinogenic to humans. Prolonged exposure to titanium dioxide causes respiratory irritation and may lead to pulmonary fibrosis (USDA APHIS, 2018d).

Program use of lambda-cyhalothrin for fruit fly eradication should pose minimal risks to human health. Under the preferred alternative Mexfly eradication programs in Texas may employ ground-based targeted applications of spinosad or lambda-cyhalothrin, and MB as a fumigant. With proper use of personal protective equipment and engineering control, exposure for program workers is not expected. Based on program methods of application and environmental impact mitigation measures taken by the program, exposure to the general public is unlikely.

Accidental exposure from splash to unprotected body areas may occur. Because only certified applicators working with State and Federal agencies, or persons under their guidance, will work with Warrior II in the RGV Mexfly program, risk from accidental exposure is minimal. The risks to the public associated with potential exposure to lambda-cyhalothrin during soil drench applications, and dietary consumption of fruit from treated fruit-bearing trees are low, based on the program's required notification of the public, and destruction of fruit in treated areas. Pica behavior is reported in 10 to 32 percent of children ages 1 to 6. Consequently, the risks associated with residential children accidentally being exposed to treated soil through pica behaviors are low, because children of this age and with this disorder tend to be under adult supervision (USDA APHIS, 2018d).

A summary of the environmental fate of lambda-cyhalothrin is discussed in the Environmental Quality section (IV.C.4) of this document. The analyses and data of EIS1 and the associated human health risk assessment, indicate that exposures to lambda-cyhalothrin from normal program operations are not likely to result in substantial

adverse human health effects. (Refer to EIS1 (USDA APHIS, 2018a) and the human health section of the supporting risk assessment (USDA APHIS, 2018d) for more detailed information relative to human health risk.)

Site inspections will be continued to ensure Warrior II treatments are not likely to affect humans. Applications may be rescheduled if strong winds or rainfall is forecast for outside areas to be treated. Lambda-cyhalothrin's toxicity is reduced by dilution from a storm's water and air movement.

A well-coordinated pest eradication program using IPM technologies (including lambda-cyhalothrin soil drenches) results in the least use of chemical pesticides and minimizes their potential to adversely affect human health. The no action alternative is not expected to eliminate Mexfly as readily as the preferred alternative. Trying to manage the rapidly-expanding Mexfly infestation in the RGV without the option for eradicating soil-inhabiting Mexfly life stages would likely result in broader 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

The application of pesticides as soil drenches as prescribed for Mexfly cooperative program use is very highly unlikely to have any effects on historic places, children, minorities, low-income popoulations, Tribal members, or communities in addition to those impacts that were previously considered in the January 2020 RGV Mexfly cooperative eradication program EA. This method of application is not expected to pose any additional exposures or hazards based on the formulation and pesticide characteristics when used according to the label requirements.

3. Nontarget Species

Under the preferred alternative, the principal concerns for nontarget species, including threatened and endangered species, relate to potential harm from the use of lambda-cyhalothrin. Paralleling human health risk, the risk to nontarget species is related to lambda-cyhalothrin's fate in the environment, its toxicity to the nontarget species, and its exposure to nontarget species.

USDA APHIS evaluated the potential risk of lambda-cyhalothrin to nontarget species in an ecological risk assessment (USDA APHIS, 2018d). The risk assessment concluded that the risk of lambda-cyhalothrin use to nontarget terrestrial vertebrates is expected to be very low. Available toxicity data for mammals and birds and the proposed use pattern suggest that the probability of exposure to a significant amount of lambda-cyhalothrin that would result in adverse effects is very low. Primary exposure and risk for terrestrial vertebrates would be through the consumption of treated soil and any associated soil invertebrates. The low frequency of these treatments in the program, and the targeted application to soil in either containerized plants or beneath the drip line of host trees in

a small area, suggest that nontarget birds and mammals would have to consume many times their daily food consumption rates to receive a dose that could result in an effect. Indirect effects through loss of prey items for insectivores are also not expected because applications are targeted to either containerized plants, where nontarget mammals and birds would not forage, or to small areas under the drip line of host trees. These treatments and their frequency of use in the program would not result in significant terrestrial invertebrate population declines that could impact prey consumption by mammals and birds that feed on insects. Lambda-cyhalothrin would be expected to impact some soil-borne terrestrial invertebrates. However, the exposure estimate is below available earthworm acute and chronic exposure endpoints, suggesting that impacts to soil invertebrates would be mostly to sensitive arthropods. Any impacts would be limited to directly below the drip line where applications are being made and are not expected to have impacts over a large area.

Findings of the risk assessment indicate low risk to aquatic vertebrates and invertebrates. Lambda-cyhalothrin is highly toxic to aquatic species; however, the use pattern in the fruit fly program, the low frequency of use in the program, and the current label restrictions that require protection of aquatic areas are expected to result in low risk to aquatic vertebrates and invertebrates. In addition, the method of application reduces off-site transport from drift, and any transport would occur from runoff. Lambda-cyhalothrin in runoff would be adsorbed to soil particles, and other organic matter, further reducing its availability to water column aquatic nontarget species. Exposure and risk are highest for aquatic nontarget species that use or occupy the sediment in an aquatic habitat; however, the risk is expected to be low.

The potential nontarget effects associated with lambda-cyhalothrin applications would not be part of the no action alternative. However, the no action alternative would not be as effective in elimination of the Mexfly infestation because the immature stages (larvae and pupae) of Mexfly are not targeted under the no action alternative.

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 seven-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 lambda-cyhalothrin 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 (EO) 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 APHIS and FWS was signed to facilitate the implementation of this EO.

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 1 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 (USDA APHIS, 2018d). Available oral and dietary dosing studies suggest that lambda-cyhalothrin is practically non-toxic to birds. Toxicity data for birds as well as the proposed use pattern suggest that the probability of exposure to a significant amount of lambda-cyhalothrin that would result in adverse effects to birds is very low.

Table 1. Migratory Birds of Conservation Concern in Brooks, Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata Counties.

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.

(Source: FWS, 2018)

In a July 2015 concurrence letter for Endangered Species Act (ESA) consultation, FWS made recommendations regarding the protection of migratory birds (FWS, 2015). 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 that a buffer of vegetation (≥ 50 feet) remain around the nest until young have fledged or the nest is abandoned.

b. Endangered Species Act

Section 7 of the ESA and ESA's implementing regulations require Federal agencies to consult with FWS and/or the National Marine Fisheries Service (NMFS) 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. If listed species or critical habitat are present in the area and program activities may affect them, USDA APHIS consults with FWS and NMFS, as appropriate.

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, 2020).

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. Most recently, USDA APHIS submitted a BA to FWS that considered the potential impacts of lambda-cyhalothrin

soil drenches on federally-listed species in the program area (USDA APHIS, 2020c).

USDA APHIS determined that the targeted application of lambda-cyhalothrin soil drenches beneath host plants in residential and commercial citrus situations will have no effect on the West Indian manatee. Lambda-cyhalothrin is moderately toxic to mammals, but it strongly adsorbs to soil and is unlikely to contaminate water via runoff. In addition, this treatment would not be applied in the habitat of the manatee, and critical habitat is not present in the program area.

Lambda-cyhalothrin soil drenches will have no effect on the ocelot or Gulf Coast jaguarundi because these targeted treatments will not occur in the brushy, natural habitat of these species. The cats would not be exposed to lambda-cyhalothrin because it will be applied beneath the dripline of host plants where immature Mexfly stages may occur in the soil.

The green, leatherback, Kemp's Ridley, loggerhead, and hawksbill sea turtles occur in the program area, although no critical habitat for these species occurs in the program area. Treatments would not occur in nesting areas of sea turtles. Insecticide treatments would not be made to aquatic areas. The targeted application of lambda-cyhalothrin soil drench prevents drift of the insecticide into areas inhabited by sea turtles. Therefore, lambda-cyhalothrin soil drenches would have no effect on sea turtles.

Lambda-cyhalothrin soil drenches will have no effect on listed birds in the program area. Critical habitat for the piping plover is also within the program area, but lambda-cyhalothrin treatments would not occur within critical habitat. Lambda-cyhalothrin is considered practically non-toxic to birds. Soil drenches using lambda-cyhalothrin would not be conducted in the habitats of these birds; thus, they would not be exposed to lambda-cyhalothrin and would not be disturbed by drenching activities. The localized and direct application of lambda-cyhalothrin soil drenches would not result in any impacts to the food of these birds.

Lambda-cyhalothrin drenches would have no effect on listed plants in the program area. These plants are not Mexfly hosts and thus, drenches would not be applied to them. Also, pollinators of these plants would not be affected. The targeted application of lambda-cyhalothrin only to fruit fly host plants would eliminate any impacts to listed plants, and lambda-cyhalothrin would not be applied in the critical habitat of the Zapata bladderpod.

Lambda-cyhalothrin exposure from program treatments could affect the Texas hornshell (*Popenaias popei*). Toxicity to freshwater aquatic invertebrates is high (USDA APHIS, 2018d). Therefore, a 25-foot treatment buffer will be used from the Rio Grande in Webb County to

prevent lambda-cyhalothrin from entering waters inhabited by the Texas hornshell. Sterile Mexflies can be released or fruit stripping will take place within buffer areas. With the implementation of these measures, USDA APHIS has determined that Mexfly eradication may affect, but is not likely to adversely affect the Texas hornshell. USDA APHIS received a concurrence letter from FWS dated March 20, 2020.

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 BAs (USDA APHIS, 2020c; USDA APHIS, 2018h). (Refer to EIS1 (USDA APHIS, 2018a) and the ecological sections of the supporting risk assessments (USDA APHIS, 2018a, 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2003) for more detailed consideration of program pesticide risk to nontarget species.)

Should the program area expand or program activities change, or additional species are listed or critical habitat is designated in the program area, USDA APHIS will reinitiate consultation with FWS and other appropriate agencies, as necessary. A complete administrative record of this review is available upon request.

4. Environmental Quality

The principal environmental quality concerns are for the protection of air quality, water quality, and the minimization of the potential for environmental contamination. In relation to preserving environmental quality, program pesticides remain the major concern for the public and the program. Although program pesticide use is limited, 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 fate of lambda-cyhalothrin is outlined below. (Refer to EIS1 (USDA APHIS, 2018a) and the supporting risk assessments (USDA APHIS, 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2003) for a more detailed consideration of the program pesticides' environmental fates.)

Lambda-cyhalothrin is not mobile and tends to strongly adsorb to organic matter in soil based on its high organic carbon/water partition coefficient (KOC). Lambda-cyhalothrin has a low potential to leach as dissolved residues in percolating water because of its low water solubility and high mean KOC. In the water column, lambda-cyhalothrin tends to adsorb to suspended particulate materials such as clay particles and organic matter, transport with the suspended particulates through aquatic systems, and

settle in the sediments. Volatilization of lambda-cyhalothrin from soil and water surfaces occurs slowly. Volatilization from foliage occurs more rapidly.

Lambda-cyhalothrin is moderately persistent in the environment. It degrades in the environment through a combination of biotic and abiotic mechanisms (photolysis, hydrolysis, and microbial biodegradation). When exposed to sunlight, lambda-cyhalothrin in water and soil photodegrades and has half-lives of 24.5 days and 53.7 days, respectively. In water, lambda-cyhalothrin is stable and no hydrolysis occurs at a pH below 8; it has been reported to hydrolyze in water at a pH of 9 with a half-life of approximately 9 days or 13 days. Lambda-cyhalothrin biodegrades at moderate rates (half-lives ranging from 12 to 72 days) under both aerobic and anaerobic soil metabolism conditions. Lambda-cyhalothrin aquatic biodegradation is slow with metabolism half-lives ranging from 113-142 days (USDA APHIS, 2018d).

Lambda-cyhalothrin partitions to lipids suggesting a high potential to bioconcentrate due to its high octanol/water partition coefficient (KOW) and low water solubility. The reported bioconcentration factor in fish is 2,240. Lambda-cyhalothrin in soil is not easily taken up by the roots of vascular plants because it strongly adsorbs to soil. Aquatic macrophytes can take up lambda-cyhalothrin in water via their roots. Through translocation, lambda-cyhalothrin uptake partitions into upper plant biomass. The uptake rates of various macrophytes are species- and pesticide-specific (USDA APHIS, 2018d).

Urban and agricultural runoff may flow directly into local waters, picking up trash, dirt, chemicals, and other contaminants along the way. If treatment is indicated in close proximity to a body of water where pesticides might be directly discharged into the water, TDA will analyze the environmental setting, and establish and follow site-specific best management practices.

Mitigation measures will be applied to protect marine and freshwater resources. The prescribed method for program applications of Warrior II minimizes the potential for pesticide drift and runoff. Personnel applying Warrior II will adhere to label directions, Federal and State laws, and recommendations of the environmental compliance staff associated with the program. Waterbody contact is not anticipated due to the targeted application methods, the use of distance buffers, and the environmental fate of the pesticides used in Mexfly cooperative eradication programs. The approaches used by the RGV Mexfly Program to mitigate for adverse impacts to waterbodies are detailed in the January 2020 EA and EIS1 (USDA APHIS, 2018a).

5. Cumulative Impacts

This section considers the potential of the alternatives to cause cumulative impacts on the human environment. Implementation of the no action alternative may:

- lengthen the time needed to control the numerous concurrent Mexfly outbreaks in the RGV;
- require higher volumes of spinosad and methyl bromide treatment than needed to control more isolated Mexfly outbreaks;
- increase the time it takes for commodities to reach their intended markets;
- prevent them from reaching consumers at all, which may contribute to consumer shortages and negative public perception of the affected industry.

No significant cumulative impacts are expected to result from proper implementation of the preferred alternative. The differences in pesticides (mechanisms of toxic action, targets for pesticide application, affected species and resources, application timing) used by the RGV Mexfly Program and other pest control programs in Texas are unlikely to create significant cumulative impacts in the human environment. No synergistic or cumulative impacts from pesticide applications are expected with the following active control programs in Texas (TDA, 2020; 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—**Quarantine and chemical applications in Cameron, Hidalgo, Webb and Willacy Counties
- **Red imported fire ant—**Quarantine over much of the State, including all counties in the potential Mexfly program area except Zapata County

It is uncertain how pesticides may be used by private entities in any pest 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 the preferred alternative. Use of the chemical treatments prescribed for USDA APHIS fruit fly programs is considered to pose minimal risk to the human environment, as determined in EIS1 (USDA APHIS, 2018a), and the supporting risk assessments (USDA APHIS, 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2014, 2003).

V. Agencies Consulted

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Plant Health Programs–Pest Management
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

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EPA—See U.S. Environmental Protection Agency

FWS—See U.S. Fish and Wildlife Service

NAPIS—See National Agricultural Pest Information System

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U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018c. Human Health and Ecological Risk Assessment for Dichlorvos (DDVP) in Exotic Fruit Fly Applications. April 2018. Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2018d. Human Health and Ecological Risk Assessment for Lambda-cyhalothrin in Exotic Fruit Fly Applications. April 2018. Riverdale, MD.

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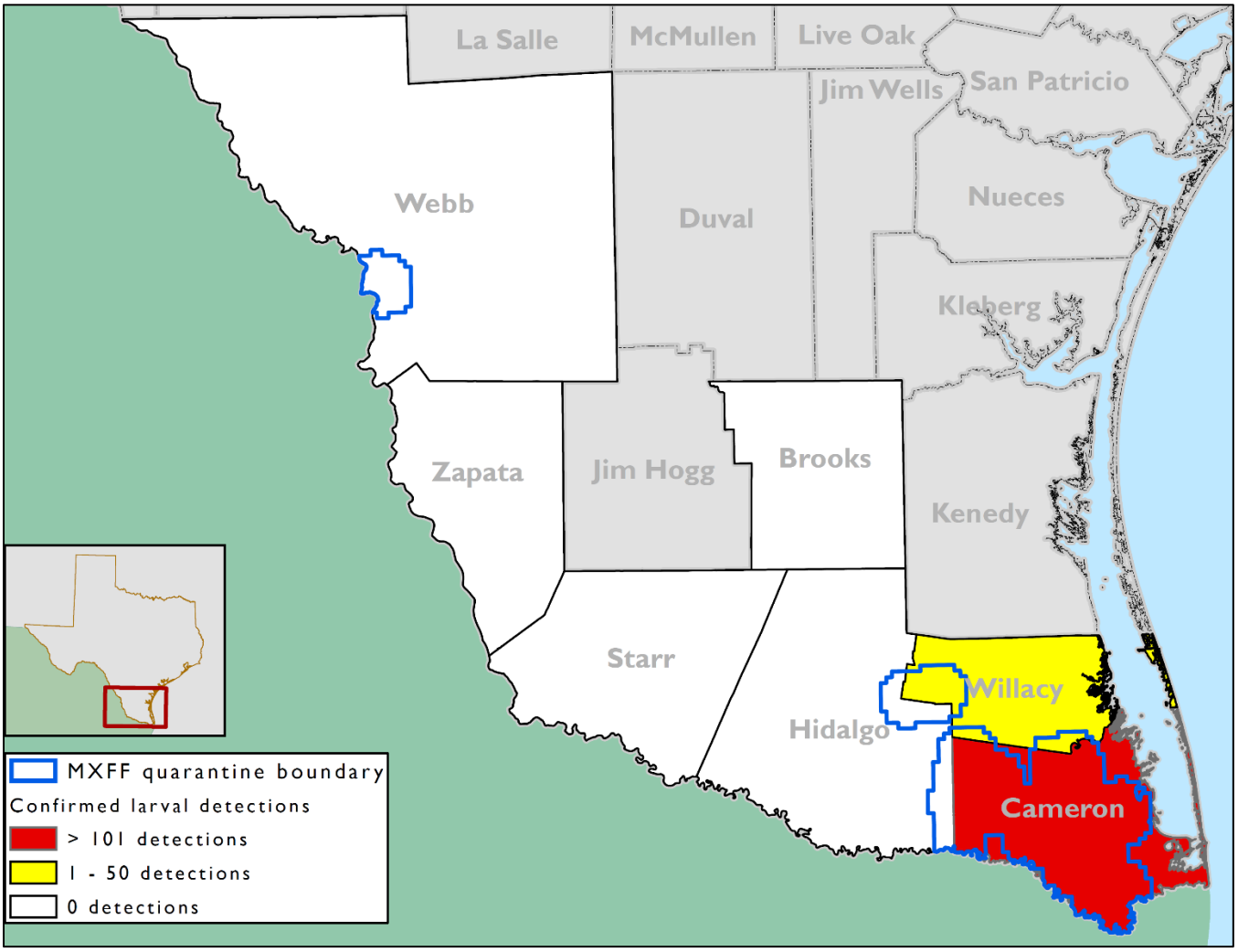
Appendix A. Active Mexfly Quarantine and Potential Program Area



Map created March 27, 2020.
Source: USDA APHIS PPQ