Emergency Transboundary Outbreak Pest (ETOP) Situation Bulletin for February with a forecast through mid-April 2022

résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**[1]): The locust situation remained calm in the Horn of Africa, in Somalia, Ethiopia and Djibouti in the Central outbreak regions (COR). Only some hopper and adult groups were treated (1,220 ha) in southeast Egypt, and scattered adults were observed on the Red Sea coast in Sudan and isolated adults were detected on the Oman coast. No locusts were reported elsewhere in the region. The western outbreak region (WOR) remained calm, and only some adults were observed in southern Algeria. No locusts were reported in the eastern outbreak region (EOR) during this month.

Forecast: Ecological conditions will continue drying out in Egypt, Sudan, Eritrea, Saudi Arabia, and Yemen along both sides of the Red Sea coasts causing locust numbers to further decline in COR. Only low numbers of adults may appear in spring breeding areas in the interior of Saudi Arabia and Yemen, but poor rains are expected to limit breeding during the forecast period. In WOR, small-scale breeding may commence in Algeria and Morocco as the temperature rises and seasonal rains begin falling, however, significant development is unlikely in the region during the forecast period. In EOR, isolated adults are likely to appear in southeast Iran and southwest Pakistan and start breeding on a small-scale, but significant development is no likely during the forecast period.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (NSE): NSE situation remained relatively calm during February. The development of hopper bands and fledglings was expected in the primary outbreak areas in Tanzania, Malawi, Mozambique, and Zambia in the International Red Locust Control Organization in the Southern and Central Africa (IRLCO-CSA) region.

African Migratory Locust (*Locusta migratoria migratorioides) (AML*): Isolated populations of AML persisted in Simalaha Plains in Western Province in Zambia and Manicaland, Zimbabwe.

Malagasy locust (*Locust migratoria capito) (*ML)**:** In Madagascar, aerial and ground survey and control operations continued against hopper groups and bands and young adults with the support of two FAO contracted helicopters.

[1] *Definitions of all acronyms can be found at the end of the report.*

Tree Locusts, *Anacridium spp. (ASP):* No ASP activities were reported during this month.

Central American Locust, *Schistocerca piceiferons* **(**CAL): CAL outbreak was reported in agricultural fields in La Cáscara, Nuevo León, Mexico during February.

South American Locust, *Schistocerca cancellata* (SAL): No update was received at the time this bulletin was compiled.

Italian (*CIT*), Moroccan (*DMA*), and **Asian Migratory Locusts (*LMI*)**: DMA, CIT and LMI activities remined calm in the CCA regions.

Fall Armyworm *(Spodoptera frugiperda, J. E. Smith) (FAW)*: FAW infestations continued in Zambia, Malawi, and Zimbabwe where control operations were carried out by the affected farmers with material and technical assistance from their respective Ministries of Agriculture (MoA). FAW infestations are expected to have occurred elsewhere in SSA and other countries, but updates were not available at the time this bulletin was compiled.

African Armyworm (*Spodoptera exempta*) (AAW): AAW outbreaks were reported in Tanzania, Malawi, and Kenya; affected farmers carried out control operations with material and technical assistance from their respective MoAs.

Quelea species (QSP): QSP outbreaks were reported in Ethiopia, Tanzania, and Zimbabwe where the pest was threatening/damaging rice, sorghum and wheat.

Active surveillance, monitoring and timely preventive and curative control as well as timely sharing of information on ETPs remain critical to abate the threats ETOPs pose to food security and livelihoods of vulnerable communities.

USAID/BHA/TPQ *regularly monitors ETOPs in close collaboration with its global network of PPDs/DPVs, regional and international pest monitoring and control entities, FAO, CLCPRO, CRC, DLCO-EA, and IRLCO-CSA, and research centers, academia, private sector, NGOs and others and issues monthly analytical ETOP Bulletins to stakeholders (refer to list of acronyms from pages 13 on).* ***End summary***

RÉSUMÉ

La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR): La situation acridienne est restée calme dans la Corne de l'Afrique, en Somalie, en Éthiopie et à Djibouti dans les Régions grévistes du Centre (COR). Seuls quelques larves et

groupes d'ailés ont été traités (1 220 ha) dans le sud-est de l'Égypte, et des ailés épars ont été observés sur la côte de la mer Rouge au Soudan et des ailés isolés ont été détectés sur la côte d'Oman. Aucun criquet n'a été signalé ailleurs dans la région. La région ouest du foyer (WOR) est restée calme et seuls quelques ailés ont été observés dans le sud de l'Algérie. Aucun Criquet pèlerin n'a été signalé dans la région de résurgence orientale (EOR) au cours de ce mois.

Prévisions: Les conditions écologiques continueront de se dessécher en Égypte, au Soudan, en Érythrée, en Arabie saoudite et au Yémen le long des deux côtés des côtes de la mer Rouge, entraînant une nouvelle baisse des effectifs acridiens dans le COR. Seuls de faibles effectifs d'ailés peuvent apparaître dans les zones de reproduction printanière de l'intérieur de l'Arabie saoudite et du Yémen, mais on s'attend à ce que de faibles pluies limitent la reproduction pendant la période de prévision. Dans la région WOR, une reproduction à petite échelle peut commencer en Algérie et au Maroc avec la hausse des températures et le début des pluies saisonnières, cependant, un développement significatif est peu probable dans la région au cours de la période de prévision. Dans la région EOR, des ailés isolés vont probablement apparaître dans le sud-est de l'Iran et le sud-ouest du Pakistan et commencer à se reproduire à petite échelle, mais un développement significatif n'est pas probable pendant la période de prévision.

Criquet nomade (*Nomadacris septemfasciata*) (NSE): La situation de la NSE est restée relativement calme en février. Le développement de bandes larvaires et de jeunes ailés était attendu dans les principales zones de résurgence en Tanzanie, au Malawi, au Mozambique et en Zambie dans la région de l'Organisation internationale de lutte contre le criquet nomade en Afrique australe et centrale (IRLCO-CSA).

Criquet migrateur africain: Locusta migratoria migratorioides (LMI): Des populations isolées de LMI ont persisté dans les plaines de Simalaha dans la province occidentale en Zambie et dans le Manicaland, au Zimbabwe.

Criquet migrateur capito, (ML): À Madagascar, les opérations de prospection et de lutte aériennes et terrestres se sont poursuivies contre les groupes et bandes larvaires et les jeunes adultes avec l'appui de deux hélicoptères sous contrat avec la FAO.

Le criquet arborial, *Anacridium spp*: (ASP): Anacridium spp. (ASP): Aucune activité ASP n'a été signalée au cours de ce mois.

Criquet Amérique centrale (CAL): Un foyer de CAL a été signalé dans des champs agricoles à La Cáscara, Nuevo León, Mexique en février.

Criquet d'Amérique du Sud, *Schistocerca cancellata* **(SAL**): Aucune mise à jour n'a été reçue au moment de la rédaction de ce bulletin.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): Les activités DMA, CIT et LMI ont rappelé le calme dans les régions CCA.

Chenille Légionnaire d'automne (Spodoptera frugiperda, J. E. Smith) (FAW): Les infestations de FAW se sont poursuivies en Zambie, au Malawi et au Zimbabwe, où des opérations de lutte ont été menées par les agriculteurs touchés avec l'assistance matérielle et technique de leurs ministères de l'Agriculture (MoA) respectifs. On s'attend à ce que des infestations de CLA se soient produites ailleurs en ASS et dans d'autres pays, mais les mises à jour n'étaient pas disponibles au moment de la rédaction de ce bulletin.

Chenille Légionnaire africaine (Spodoptera exempta) (AAW): Des flambées de AAW ont été signalées en Tanzanie, au Malawi et au Kenya; Les agriculteurs touchés ont mené des opérations de lutte avec l'assistance matérielle et technique de leurs ministères de l'agriculture respectifs.

***Quelea sppecis oiseaux* (QSP):** des foyers de QSP ont été signalés en Éthiopie, en Tanzanie et au Zimbabwe, où le ravageur menaçait/endommageait le riz, le sorgho et le blé.

La surveillance active, le suivi et les interventions préventives et curatives opportunes ainsi que le partage des information ETOP restent essentiels pour réduire les menaces que les ETOP font peser sur la sécurité alimentaire et les moyens de subsistance des communautés vulnérables.

USAID / BHA / PSPM surveille régulièrement les ETOP en étroite collaboration avec son réseau de PPD / DPV nationaux, d'entités régionales et internationales de surveillance et / ou de lutte antiparasitaire, y compris la FAO/ECLO, la CLCPRO, le CRC, le DLCO-EA et l'IRLCO-CSA, et des centres de recherche, universités, secteur privé, ONG et autres et publie des Bulletins analytiques concis à l'intention des parties prenantes (se référer à la liste des acronymes à partir de la page 13). Fin de résumé.

Note: *All ETOP Bulletins, including previous issues can be accessed and downloaded on USAID Pest and Pesticide Monitoring website:* *USAID Pest and Pesticide Monitoring*

Additional resources for ETOPs can be found on the last pages of this Bulletin.

Weather and Ecological Conditions

In **COR**, significant rainfall was not recoding during this month.

In **WOR**, t ecological conditions remained generally unfavorable, and no significant precipitation was recorded expect for pockets of low laying wadis where perennial and a few annual vegetation was detected in the periphery of irrigated areas.

In **EOR**, dry and unfavorable conditions persisted during this month no significant precipitation was recorded.

In the **NSE** region, during February, most of the primary outbreak regions received normal to above normal rainfall - 289.7 mm in Kaliua (Malgarasi Plain), 187.2 mm in Masenge (Wembere Plain), and 166 mm in Muze (Rukwa Valley) in Tanzania. In Mozambique, above average rainfall was reported in several locations – 140 mm in Caia (Dimba plains), 112 mm in Dimba Mafambisse (Buzi plain), 105 mm in Buzi, 103 mm in 0anzania and 90.5 mm in Gorongosa (Gorongosa plain). In Namwala (Kafue Flats) Zambia 93.5 mm was reported during this month.

In the **CCA** region, no rain was reported, and ecological conditions remained unfavorable for locusts to start breeding.

Primary breeding areas in the **Central** and **South America** regions largely remained fairly dry as the seasonal rains have not commenced yet.

ETOP Proliferation and Climatic Factors

Note: Climate change induced weather anomalies contribute to an ecological shift in ETOP habitats, triggering risks in the outbreaks and resurgence of ETOPs and/or the emergence of new and invasive pest species. The frequency, extent and payload of ETOP prevalence, appearances, and upsurges are partially attributed to the changes in the weather patterns - extensive, and above normal rainfall partly associated with the occurrence of multiple cyclones or persistent drought that significantly impact pest presence, proliferation causing additional stresses to food security and livelihoods of vulnerable communities and populations – case in point: multiple cyclones that occurred in the western Indian Ocean, in the Arabian Peninsula and the Horn of Africa region within a time span of less than two years, from May 2018 to December 2019, lead to major SGR upsurges and outbreaks that continued impacting the COR region through 2021 http://www.cpc.ncep.noaa.gov/products/international/casia/casia_hazard.pdf **End note.**

Detailed Accounts of Monthly ETOP Situation and Forecast for the Next Six Weeks

The **Desert Locust** (*Schistoseca gregaria* - **SGR**[2]): In COR, the SGR situation widely declined across the Horn of Africa due to unfavorable conditions and continued aggressive control operations. In Ethiopia, ground and aerial survey operations covered more than 175,000 ha in Southeastern part of Somali region, Southern part of Oromia and in the Rift Valley region in Southern Nation, Nationalities and Peoples' (SNNPR) regions, but no locusts were detected during this month. Continued seasonal dry spell in these regions of the country caused persistent unfavorable conditions

[2] *Definitions of all acronyms can be found at the end of the report.*

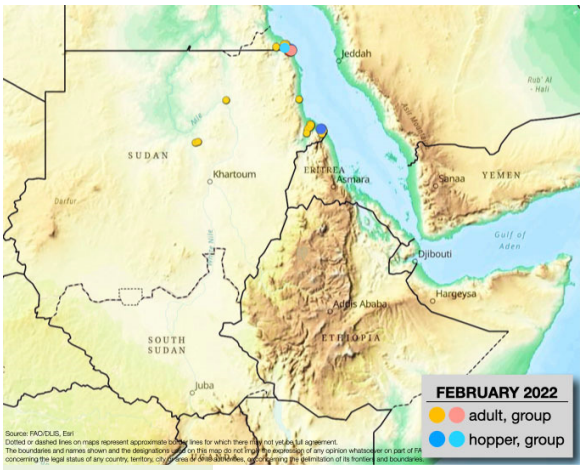
for locust to survive and breed. Small hopper and adult groups were treated (1,220 ha) in southeast Egypt. Limited breeding and scattered adults were observed on the Red Sea coast in Sudan and isolated adults were observed on the Oman coast. No locusts were reported elsewhere in the region.

Forecast: In COR, locust presence will continue further declining on both sides of the Red Sea as rains are not expected and dry conditions will persist in Egypt, Sudan, Eritrea, Saudi Arabia, and Yemen. Low numbers of adults may appear in the interior of Saudi Arabia and Yemen, but spring breeding will be limited by poor rains. No significant developments expected.

SGR – WOR: Ecological conditions remained unfavorable across WOR where very limited isolated mature solitary adult locusts were observed in southern Algeria.
Forecast: In WOR, small-scale breeding may begin in Algeria and Morocco with the rise in temperature and potential seasonal precipitation, none the less, significant development is unlikely during the forecast period.

SGR - EOR: The EOR region remained calm, and no locusts were reported in Afghanistan, India, Iran, or Pakistan during this month.

Forecast: Isolated adults are likely to appear and start breeding on a small-scale in southeast Iran and southwest Pakistan in EOR, but significant development is unlikely during the forecast period.



FAO-DLIS 2/2/22

NOTE – Innovative Technologies for ETOP Surveillance, Early Warning and Forecasting for Stronger and Effective ETOP Management: *Though at an early stage, innovative technologies, such as drones, for high-resolution images in remote and hard-to-reach inaccessible areas are being explored for ETOP operations. On trial bases, use of drones for locust monitoring, and surgical control in localized, sensitive and hard to reach areas showed promising results. While the range of agricultural oriented drones may be limited for large-scale area-wide pest control purposes, such as tackling massive swarms and hopper bands, there are interests among countries and partners to work on several parameters associated with such technologies, including air space access protocols and other issues. Crowd and cloud sourcing for data collection, sharing, etc. are another set of assets that can be of great value for ETOP operations. Dynamic population modeling and biotope modeling, from CIRAD and ICIPE, respectively, and accounting for associated parameters such as soil moisture, vegetation index, etc. that has involved multiple players – USAID, Penn-FAO, NOAA, NASA, CIRAD, National and International Research institutions,*

academia, pvt sector, and many more will certainly contribute to better understand ETOP – DL phenology, ecology, habitat range, etc. with an ultimate goal to manage them safely and effectively. ***End note.***

Red (Nomadic) Locust (NSE): NSE situation remained relatively calm during the month. However, hatching and hopper formation was expected to have taken place in Lake Chilwa/ Lake Chiuta plains, Mpatsanjoka Dambo in Malawi; Kafue Flats, in Zambia; Iku-Katavi plains, Bahi Valley, Malagarasi Basin, Rukwa Valley in Tanzania; Buzi Gorongosa, Dimba plains in Mozambique where ecological conditions remained favorable due to the seasonal rainfall. Member-country support for routine surveillance and timely control operations remain critical to avoid any unnecessary stress the pest poses to vulnerable farming and pastoralist communities. IRLOC-SCA's continued surveillance and control operations require collective attentions.

Forecast: hoppers will start fledging in outbreak areas where significant hopper bands were present. These areas includes Ikuu-Katavi, Rukwa plains, Wembere plains and Malagarasi Basin in Tanzania; Buzi and Dimba plains in Mozambique; Lake Chilwa/Lake Chiuta plains in Malawi and the Kafue Flats in Zambia. IRLCOCSA is appealing for resources to enable The Organization to carry out survey and undertake control before swarms develop.

As the rainy season comes to an end, vegetation will begin drying out cause locust to concentrate and start forming swarms. Member Countries are advised to avail resources to IRLCO – CSA and line Ministries of Agriculture to enable them to undertake surveillance and control where necessary. Low to medium size NSE hoppers and bands are likely to form in the outbreak areas in Ikuu-Katavi, Rukwa plains, Wembere plains and Malagarasi Basin in Tanzania; Buzi and Dimba plains in Mozambique; and Lake Chilwa/Lake Chiuta plains in Malawi and the Kafue Flats in Zambia prior to the seasonal rains where significant residual parental populations persisted. IRLCO-CSA is exploring for resources to be able to carry out survey and undertake control as often as needed.

African Migratory Locust (AML): Isolated scattered AML populations persisted in Simalaha plains in Western province of Zambia and Chisumbanje area in Manicaland province in Zimbabwe. No report was received from other IRLCO-SCA member-countries or elsewhere in the region.

Forecast: AML outbreaks in Southern and Western Provinces of Zambia is likely. MoAs are encouraged to ensure timely surveillance, reporting and necessary interventions remain critical to avoid any major threats. There is likelihood of African Migratory Locusts (AML) outbreaks in Southern, Western Provinces of Zambia and Manicalands in Zimbabwe. Ministry of Agriculture extension staff and farmers are encouraged to enhance surveillance and report presence of AML to the relevant authorities.

Malagasy locust (Locust migratoria capito – ML): In Madagascar, aerial and ground survey and control operations continued against hopper groups and bands and young adults with the support of two FAO contracted helicopters. In previous month, close to 21,000 ha were

reported controlled by air and ground means. The hopper composition varies from 1st to 5th instar with the solitary (80%) 2nd instar and transiens (20%) suggesting breeding is in progress. IGRs - Teflubenzuron and Novacide - are used to control the hoppers. As of now, funding for the Malagasy locust campaign has been generously contributed through the World Bank project (USD 6.8 M), the Government of Germany (USD 1.M) and FAO (USD 600,000 (FAO).

Forecast: *Cyclones Batsira and Emnati which made landfall during the first week of February and on Feb 23rd respectively, brought considerable amounts of rain in the affected areas. This has created favorable conditions for locusts to further develop. More hatching, hopper, band and group formations and fledging will continue in several places, including Manja, Befandriana-Sud and Ankazoabo. In the Horombe plateau, hopper groups and bands are expected to have begun forming and continue to form and control operations launched.*

Active and timely surveillance, monitoring, preparedness, and interventions remain critical to minimize significant locust developments and avert potential threats they pose to food security and livelihoods of vulnerable communities that have already been affected by multiple stressors, including prolonged drought, etc. (BHA/TPQ).

BHA/TPQ continuous monitoring the situation in collaboration with FAO and field staff and provides updates and advice.

Central American Locust - Schistocerca piceifrons (CAL): SPI (CAL): CAL outbreak was reported in La Cáscara, Nuevo Leon, Mexico (Pech).

According to MoA/Mexico, a locust outbreak was reported in agricultural fields in Nuevo León region during early February. MoA and the National Secretariat for Agrifood Health, Safety and Quality (SENESA) were planning on strategies to contain and prevent the pest from reaching a plague stage. Immediate actions were under way to protect major industrial, fruits and vegetables and other crops as well as avoid pest impact on the production of hundreds of local produces Nuevo Leon Locust Outbreak

The geography and climatic conditions in the northeastern region of Mexico, specifically in Huasteca of Veracruz, Tamaulipas and San Luis Potosí harbor vast areas favorable for the locust to breed and further develop. The locust infestation that is detected in Nuevo León is believed to have been the result of strong wind that may have dispersed adult flying locusts towards the foothills of the mountainous areas in northwest of the country between December 2021 and January 2022. CAL is a seasonal pest and is found in 10 states in the country, i.e., Campeche, Chiapas, Hidalgo, Oaxaca, San Luis Potosí, Tabasco, Tamaulipas, Veracruz, Quintana Roo and Yucatán (MoA/México).

[***Note**: CAL is a serious pest in Mexico and Central America and known to attack hundreds of species of plants of economic importance, including agave, banana, beans, corn, cotton, peanut, rice, sesame, soybean, sorghum, sugarcane, several fruit trees]. SENESA, Pech – SENESA, Mexico)*

South American Locust, Schistocerca cancellata (SAL) *(a.k.a. Flying lobster): No update was received at the time this*

bulletin was compiled.
https://www.voanews.com/americas/argentina-battles-locust-plague-northern-province.

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Caucasus and Central Asia (CCA): No update was received at the time this Bulletin was compiled, no locust activities are expected during this time.

Forecast: Locust activities will remain calm until spring.

Fall armyworm (FAW): Severe FAW infestations were detected in maize fields in all 10 Provinces of Zambia. The pest was also reported in Masvingo, Mazoe, Gokwe, Lupine and Hwange areas in Zimbabwe and in all eight Agriculture Development Divisions (ADD) in Malawi with the highest infestation reported in Blantyre ADD where 35,983.4 ha of maize were infested in seven districts. Control operations were carried out by the affected farmers with technical and material support from the MoAs. FAW infestations are expected to have caused mild damage to cereal crops in Kenya, Tanzania, and Mozambique, but additional information was not available at the time this bulletin was compiled.

Forecast: It is highly likely that FAW will continue affecting rain-fed and/or irrigated maize and other crops across sub-Saharan Africa, Asia, and elsewhere during the forecast period. *Active monitoring, surveillance, crop scouting, timely reporting and control interventions remain critical to avert any major damage to crops and pasture.*

FAO-led Global Action for Fall Armyworm Control

NOTE: *The Food and Agriculture Organization of the United Nations (FAO) engaged in a transformative, coordinated Global Action for Fall Armyworm Control (GAFC). With an estimated total budget of USD 500 million (USD 450 million for the Global Action and USD 50 million for Global Coordination), GAFC is planned to be implemented in 65 [target] countries across Africa, Near East and Asia-Pacific from 2020 to 2022.*

The GAFC is a pioneering initiative that aims to take radical, direct, and coordinated measures to fight FAW at a global level with the 3 key objectives to: 1. Establish a global coordination and regional collaboration on monitoring, early warning, and intelligent pest management of FAW; 2. Reduce crop losses caused by FAW and, 3. Reduce the risk of further spread of FAW to new areas (Europe and South Pacific).

(Source: Prasanna, 2021)

BHA/TPQ is working closely with various partners on projects to benefit small-scale farming communities in affected countries with the intention to scale-up gains across different FAW prone regions and consistent with the spirit of GAFC. These initiatives build on experiences gained over the past several years, including outcomes of projects and programs supported through legacy OFDA, legacy BFS, CGIARs, FAO, national partners, and several other entities.

FAO bi-monthly newsletter on the Fall Armyworm Control can be accessed here (FAW Secretariat, Global Action on FAW Control). The newsletter the latest updates on the FAO-led global action against FAW.

Note: *Several species of natural enemies of FAW have been identified in Ethiopia, Kenya, Tanzania, Madagascar, India and elsewhere and are under rigorous investigations to determine their efficacy, effectiveness, environmental impacts, safety, and other relevant parameters before they are released for extensive use.* ***End note.***

African Armyworm (Spodoptera exempta, Walker) (AAW): AAW infestations were reported in 11 regions of Tanzania (Morogoro, Arusha, Manyara, Tanga, Dodoma, Lindi, Geita, Katavi, Kilimanjaro, Coastal and Singida). In Malawi the pest was reported in Phalombe, Neno, Mulanje and Chiradzulu districts of Blantyre ADD attacking 345 ha of maize, 831 ha of rice and 32 ha of pasture. In Kenya, AAW outbreaks were reported in Makueni and Taita Taveta in the southeast part of the country. In Taita Taveta, infestations by 5th and 6th instar larvae at a density of 125 caterpillars per sq meter were observed in 3 locations. A few cases of infestations were also reported in Mwtate sub-county, but additional detail was not forthcoming at the time this bulletin was compiled. Country MoAs supplied pesticides and technical assistance to the affected farmers to control the pest. GoT provided 26,761 liters of pesticides to combat the infestations (IRLCO-SCA).

Forecast: There is a likelihood of AAW infestations to continue attacking young and late planted maize and other crops and pasture in affected countries.

Active monitoring, reporting and timely control interventions remain critical to avert any major threat/damage to crops.

Note: *Legacy OFDA developed printable and web-based interactive maps for AAW: http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=8ff7a2eefbee4783bfb36c3e784e29cb BHA/TPQ is considering a similar map for the CBFAMFEW countries.*

***Quelea* species (QSP):** In Ethiopia, aerial control operations were carried out by DLCO-EA in close collaboration with the MoA and covered six districts in Oromia and Afar Administrative regions during February. The pest was reported roosting on Typha grasses, Eucalyptus trees, sugarcane, and other vegetations.

Large flocks of QSP birds were reported posing a threat to irrigated rice in Uyui District, Tabora Region in Tanzania. Outbreaks also were reported in Midlands, Mashonaland Central and Masvingo Provinces in Zimbabwe where the pest was attacking small grain crops. Surveys are in progress in breeding areas to prepare for control interventions.

Forecast: QSP outbreaks are likely to continue posing a problem to small grain cereal growers across different regions in Ethiopia, Kenya, Tanzania, Zimbabwe and elsewhere where small grain crops have not yet been harvested.

Facts: *QSP can travel ~100 km/day in search of food. An adult QSP can consume 3-5 grams of small grain and destroy the same amount each day. A medium density QSP colony can contain up to a million or more birds and is capable of consuming and destroying 6,000 kg to 10,000 kg of seeds/day –*

amount enough to feed 12,000-20,000 people/day.

Rodents: No updates were received during this month, but it is likely that the pest continues being a problem to pre- and post-harvest crops and produce across regions and will remain being a problem.

***FACTS**: On average, an adult rat can consume 3-5 gm of food (grain, etc.) per day; a population of 200 rats/ha (a very low density/unit area) can consume a quantity enough to feed an adult sheep/day, not to mention the multiple times that amount of food the rats can damage, destroy, and contaminate making it unfit for human consumption; rats are also zoonotic diseases vectors and transmitters.*

***All ETOP front-line countries** must maintain regular monitoring and surveillance operations as well as launch control interventions in a timely manner. Regular crop scouting is critical to avoid damage /losses. Invasion countries must also remain on alert. Regional and national ETOP entities - DLCO-EA, IRLCO-CSA, DLCCs, DLMCC, CNLAs, ELOs, National DPVs and PPDs, etc., are encouraged to continue sharing ETOP information with stakeholders, including neighboring countries, and humanitarian and development partners, etc., as often as possible. Lead farmers, field scouts, community forecasters and others must remain vigilant and report ETOP detections to relevant authorities in their jurisdiction as quickly and as often as possible. Strong surveillance, monitoring and quarantine enforcement remain critical to prevent invasive pest species.*

BHA's Contributions to ETOP Abatement Interventions

USAID/BHA/TPQ is supporting operational research through a DRR with Arizona State University (ASU) to develop a tool to manage the Senegalese grasshopper (OSE) with a vision for translating the usability of these tools across regions and perhaps across continents.

OSE is a notorious pest of cereal and vegetable crops and pasture and causes serious damage to small-holder farmers across wide geographic coverage extending from the Canneries to Cape Verde to nearly all sub-Saharan Africa regions to India and beyond. This pest occurs more frequently than several other grasshopper/locust species and is a constant threat to farmers and pastoralists.

USAID/BHA/TPQ continues its efforts in strengthening national and regional capacity in ETOP (including SGR FAW, etc.) prone countries in several regions across the globe.

In addition to the OSE project that is being implemented in West Africa by ASU and partnering with experts from target countries in the region as well as international experts, BHA is also supporting DRR projects in Eastern Africa, the Horn, the Red Sea region, Caucasus and Central Asia (CCA) countries. These projects focus on surveillance, monitoring and management of ETOP of economic importance, among others. In Eastern Africa and the Horn, the multi-year DRR project targets FAW and is being implemented under the leadership of the International Center for Insect Physiology and Ecology ICIPE in close collaboration with participating countries. In the CCA region, where more than 25 million farmers and herders are constantly affected by three major locust species –

Moroccan locust, Italia locust and the Migratory locust) - BHA is funding a multi-year DRR project. The project is being implemented in close collaboration with the affected countries under the leadership of UNFAO BHA CCA Locust Support.

USAID/BHA/TPQ continues with its efforts and promote and support applied/ operational and DRR research in testing, improving, and expanding innovative technologies to help minimize the impacts of ETOPs on food security and livelihoods of vulnerable peoples and communities across low-income countries and regions and promotes and encourages collaboration among countries and potential partners. Through these efforts, potential spread of the ETOPs to other countries can be minimized.

The online Pesticide Stock Management System (PSMS) that was developed by FAO with financial assistance from donors, including USAID Legacy OFDA, that continued benefiting participating countries across the globe was halted due to an IT issue - internet security and server switch. FAO is working on reinstating the system with an improved and user-friendly mode. Thanks to the system, SGR frontline countries and others had been able to effectively manage their strategic [pesticide] stocks and avoid unnecessary accumulations of unusable stocks and empty containers.

Note: A sustainable Pesticide Stewardship (SPS) can contribute to strengthening pesticide delivery system (PDS) at the national and regional levels. A viable SPS can be effectively established by linking key stakeholders across political boundaries and geographic regions. A strong and viable PDS can effectively reduce pesticide related human health risks, minimize environmental pollution, reduce pest control costs, improve food security, and contribute to the national economy. **End note.**

BHA/TPQ promotes an IPM approach, consistent with the Agency policies and procedures, to help minimize health risks and environmental contamination associated with misuse and management of pesticides. An informed procurement and judiciously executed triangulations of surplus usable stocks between countries is worth considering.

Inventory of Strategic Pesticide Stocks for SGR Control

During February, ground control operations were conducted in Egypt (1,220 ha). Elsewhere, treatable locust populations were not detected, and control operations were not required.

Table 1. Estimated inventory of strategic SGR Pesticide Stocks in frontline and invasion countries.

Country	Quantity, l/kg*
Algeria	1,186,034~
Chad	65,270
Egypt	10,253 ULV, 45,796~
Eritrea	10,750~
Ethiopia	110,543~
Libya	24,930~
Kenya	
Madagascar	206,000~ + 100,000[D]
Mali	3,540~
Mauritania	39,803~
Morocco	3,412,374[D]
~Niger	75,701~
Oman	5,000
Saudi Arabia	23,379~
Senegal	156,000~
Somalia	
Sudan	103,482~

South Sudan	
Tunisia	62,200 obsolete
Uganda	
Yemen	10,000; 180 kg GM

*Includes different pesticides and formulations - ULV, EC and dust.

~ data may not be current.
D = Morocco donated 100,000 l of pesticides to Madagascar and 10,000 l to Mauritania in 2015 through triangulation
D = In 2013 Morocco donated 200,000 l to Madagascar
D = Saudi donated 10,000 to Yemen and pledged 20,000 l to Eritrea

DM = Morocco donated 30,000 l of pesticides to Mauritania
GM = *GreenMuscle*™ (fungal-based biological pesticide, e.g., NOVACRID)

LIST OF ACRONYMS

AAW African armyworm (Spodoptera exempta)
AELGA Assistance for Emergency Locust Grasshopper Abatement
AFCS Armyworm Forecasting and Control Services, Tanzania
AfDB African Development Bank
AGRA Agricultural Green Revolution in Africa
AME Anacridium melanorhodon (Tree Locust)
AML African Migratory (Locust Locusta migratoria migratorioides)
APLC Australian Plague Locust Commission
APLC Australian Plague Locust Commission
Bands groups of hoppers marching pretty much in the same direction
ASARECA Association for Strengthening Agricultural Research in Eastern and Central Africa
BHA Bureau for Humanitarian Assistance
CABI Center for Agriculture and Biosciences International
CAL Central American Locust Schistocerca piceifrons piceiferons
CBAMFEW Community-based armyworm monitoring, forecasting and early warning
CCA Caucasus and Central Asia
CERF Central Emergency Response Fund
CIT Calliptamus italicus (Italian Locust)
CLCPRO Commission de Lutte Contre le Criquett Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)
CNLA(A) Centre National de Lutte Antiacridienne (National Locust Control Center)
COR Central SGR Outbreak Region
CPD Crop Protection Division
CRC Commission for Controlling Desert Locust in the Central Region
CTE Chortoicetes terminifera (Australian plague locust)
DDLC Department of Desert Locust Control
DLCO-EA Desert Locust Control Organization for Eastern Africa
DLMCC Desert Locust Monitoring and Control Center, Yemen
DMA Dociostaurus maroccanus (Moroccan Locust)
DPPQS Department of Plant Protection and Quarantine Services, India
DPV Département Protection des Végétaux (Department of Plant Protection)
ELO EMPRES Liaison Officers –

EMPRES Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
EOR Eastern SGR Outbreak Region
ETOP Emergency Transboundary Outbreak Pests
FAW Spodoptera frugiperda (SFR) (Fall armyworm (FAW)

Fledgling immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed
GM GreenMuscle® (a fungal-based biopesticide); NOVACRID, Green Guard
ha hectare (= 10,000 sq. meters, about 2.471 acres)
ICAPC IGAD's Climate Prediction and Application Center
IGAD Intergovernmental Authority on Development (Horn of Africa)
IRIN Integrated Regional Information Networks
IRLCO-CSA International Red Locust Control Organization for Central and Southern Africa
ITCZ Inter-Tropical Convergence Zone
ITF Inter-Tropical Convergence Front = ITCZ)
FAO-DLIS Food and Agriculture Organizations' Desert Locust Information Service
Hoppers young, wingless locusts/ grasshoppers (Latin synonym = nymphs or larvae)
JTWC Joint Typhoon Warning Center
Kg Kilogram (~2.2 pound)
L Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
LCC Locust Control Center, Oman
LPA Locustana pardalina
ML Locusta migratoriacapito (Malagasy locust)
MoAFSC Ministry of Agriculture, Food Security and Cooperatives
MoAI Ministry of Agriculture and Irrigation
MoARD Ministry of Agriculture and Rural Development
NALC National Agency for Locust Control
NCDLC National Center for the Desert Locust Control, Libya
NOAA (US) National Oceanic and Aeronautic Administration
NPS National Park Services
NSD Republic of North Sudan
NSE Nomadacris septemfasciata (Red Locust)
OFDA Office of U.S. Foreign Disaster Assistance
PBB Pine Bark Beetle (Dendroctonus sp. – true weevils
PHD Plant Health Directorate
PHS Plant Health Services, MoA Tanzania
PPD Plant Protection Department
PPM Pest and Pesticide Management
PPSD Plant Protection Services Division/Department
PRRSN Pesticide Risk Reduction through Stewardship Network
QSP Quelea species (Red Billed Quelea bird, etc.)
SAL South American (Locust Schistocerca cancellata)
SARCOF Southern Africa Region Climate Outlook Forum
SGR Schistoseca gregaria (the Desert Locust)
SSD Republic of South Sudan
SPB Southern Pine Beetle (Dendroctonus frontalis) – true weevils
SWAC Southwest Asia DL Commission
PBB Pine Bark Beetle
PSPM Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)
TPQ Technical Program Quality
Triangulation The process whereby pesticides are donated by a country, with large inventories, but often no immediate need, to a country with immediate need with the help of a third party in the negotiation and shipments, etc. Usually, FAO plays the third-party role in the case of locust and other emergency pests.
UF University of Florida
USAID the Unites States Agency for International Development
UN the United Nations

WOR Western SGR Outbreak Region
ZEL Zonocerus elegans, the elegant grasshopper
ZVA Zonocerus variegatus, the variegated grasshopper, is emerging as a relatively new dry season pest, largely due to the destruction of its natural habitat through deforestation, land clearing, etc. for agricultural and other development efforts and due to climate anomalies

USAID PM Guidelines

Point of Contact:
For additional information or questions, comments, or suggestions, etc., please reach out to:

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To learn more about our activities and programs, please, visit our PPM website: USAID/BHA PPM

Additional resources on ETOPs

USAID/BHA Pest and Pesticide Monitoring and ETOP Bulletins: USAID/BHA PPM

USAID/BHA Archived ETOP Bulletins Archived ETOP Bulletins

USAID Pest Management Guidelines *USAID PM Guidelines*

SGR:
UN/FAO Desert Locust (SGR) Watch FAO Desert Locust Watch

FAO Locust Hub SGR HUB

FAO Locust Emergency Appeal for Greater Horn of Africa and Yemen SGR Appeal for GHA and Yemen

FAO Desert Locust Crisis SGR Crisis

The Desert Locust Control Organization for Eastern Africa DLCO-EA

FAO/Central Region Commission for the SGR Control SGR CRC

FAO/Western Region Commission for SGR Control SGR CLCPRO

FAO SGR Response Overview Dashboard FAO SGR Dashboard

IGAD Climate Predication and Application Centres ICPAC Climate SGR

CCA Locusts:
FAO Locust Watch – Caucasus and Central Asia CAC Locust Watch

USAID/BHA supports for locust operations in the CCA Region BHA CCA Locust Support

FAW:
USAID FtF FAW USAID FAW
CABI on Invasive species Invasive Species Compendium

USAID FAW PEA/PERSUAP *FAW PERSUAP*

FAO FAW Monitoring and Early warning System FAW EW&M

FAO-USAID Global Action for FAW Control webinars GAFC

FAO NURU FAW Application Nuru the talking app for FAW

CABI on FAW

FAW management animation SAWBO
FAW Management Animation

AAW:
Armyworm

Famine Early Warning System Network
FEWS NET

NOAA Climate Prediction Center NOAA CPC