

**Global Emergency Transboundary Outbreak Pest (GETOP) Situation
Bulletin for January with a forecast through mid-March 2023**
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹): The SGR situation remained generally calm during January in the Central Outbreak Region (COR). In Yemen, , the situation remained calm during January and only low numbers of solitary adults were detected in a few places on the Red Sea coastal plains and 7 sites on the Gulf Aden coastal plains during this month. No locusts were reported in Ethiopia and no reports were received in Djibouti, Kenya, Somalia or elsewhere in the region during this month. No update was received from Sudan or Eritrea at the time this Bulletin was compiled, however, it is likely that low-density populations and individual adults and hoppers are present in winter breeding areas in Sudan and perhaps in Eritrean, but significant populations are not expected. In the Western outbreak region (WOR), the SGR situation remained generally calm, only limited number of SGR were reported and treated - 467 ha in Morocco and in 35 ha in Mauritania during January, and no locust was report elsewhere in the region. No locusts were reported in the Eastern outbreak region (EOR) during this month.

Forecast: In COR, limited locust activities may appear in a few places in Sudan and Yemen, but significant developments are not likely in the region during the forecast period. In WOR, locust numbers will remain low in Algeria, Mauritania, and Morocco, and a few may appear in low laying wadis here and in Niger where green vegetation may be present, but significant activities are not expected during the forecast period. In EOR, the situation will likely remain calm during the forecast period.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (NSE): Annual breeding cycle of NSE continued at the foothills of the seasonal rains and hatching is expected to have started in the primary breeding areas in Malawi, Mozambique, Tanzania, and Zambia where significant parental populations were present.

African Migratory Locust (*Locusta migratoria migratorioides*) (LMI - AML): Scattered low-density populations of LMI persisted in Simalaha Plains, in Zambia. No LMI reports were received in other outbreak countries at the time this Bulletin was compiled, but significant activities are not expected.

¹ Definitions of all acronyms and useful weblinks can be found on the last few pages of the bulletin.

Malagasy locust (*Locust migrator capito*) (LMC): No update was received, but LMC activities usually begin at the foothills of the rainy season (October-November in Madagascar).

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

Central American Locust, *Schistocerca piceiferons* (CAL): CAL remained calm and only low numbers of solitary adults were detected in Central America.

South American Locust, *Schistocerca cancellata* (SAL): No update was received, and no activities are expected.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): Locust activities were calm in the CCA region and will remain so until spring.

Fall Armyworm (*Spodoptera frugiperda*, J. E. Smith) (FAW): FAW outbreaks continued affecting maize in Malawi and Zambia where the affected farmers carried out control with assistance from their respective Ministries of Agriculture.

African Armyworm (*Spodoptera exempta*) (AAW): AAW outbreaks were reported in Kisumu Country in Kenya and several regions in Tanzania and the affected farmers carried out control operations with assistance from their respective Ministries of Agriculture.

Quelea species (QSP): QSP outbreaks were reported attacking rice in Kenya and several regions in Tanzania, and control operations were carried out using DLCO-EA spray aircraft.

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 National MoA PPDs/DPVs/PHSSs, 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 (please refer to list of acronyms on the last pages). **End summary***

RÉSUMÉ EN FRANÇAIS

La situation du Criquet pèlerin (*Schistoseca gregaria* SGR): La situation SGR est restée généralement calme en janvier dans la région centrale de l'épidémie (COR). Au Yémen, la situation est restée calme en janvier et seuls de faibles effectifs d'ailés solitaires ont été détectés dans quelques sites des plaines côtières de la mer Rouge et 7 sites des plaines côtières du golfe d'Aden au cours de ce mois. Aucun criquet n'a été signalé en Éthiopie et aucun rapport n'a été reçu à Djibouti, au Kenya, en Somalie ou ailleurs dans la région au cours de ce mois. Aucune mise à jour n'a été reçue du Soudan ou de l'Érythrée au moment de la rédaction de ce bulletin, cependant, il est probable que des populations à faible densité et des ailés et des larves individuels soient présents dans les zones de reproduction hivernale au Soudan et peut-être en Érythrée, mais des populations importantes ne sont pas attendues. .. Dans la région ouest de la résurgence (WOR), la situation des SGR est restée généralement calme, seul un nombre limité de SGR a été signalé et traité - 467 ha au Maroc et 35 ha en Mauritanie en janvier, et aucun criquet n'a été signalé ailleurs dans la région. Aucun Criquet pèlerin n'a été signalé dans la région orientale de la résurgence (EOR) au cours de ce mois.

Prévisions: Dans la COR, des activités acridiennes limitées peuvent apparaître dans quelques endroits au Soudan et au Yémen, mais des développements significatifs ne sont pas probables dans la région au cours de la période de prévision. Dans la région WOR, les effectifs acridiens resteront faibles en Algérie, en Mauritanie et au Maroc, et quelques-uns pourraient apparaître dans les oueds de faible ponte ici et au Niger où de la végétation verte peut être présente, mais des activités significatives ne sont pas attendues au cours de la période de prévision. En EOR, la situation restera probablement calme pendant la période de prévision.

Criquet nomade (*Nomadacris septemfasciata* - NSE): Le cycle de reproduction annuel du NSE s'est poursuivi aux contreforts des pluies saisonnières et l'éclosion devrait avoir commencé dans les principales zones de reproduction au Malawi, au Mozambique, en Tanzanie et en Zambie où d'importantes populations étaient présentes.

Criquet migrateur africain (AML/LMI): Des populations dispersées de faible densité de LMI ont persisté dans les plaines de Simalaha, en Zambie. Aucun rapport d'IMT n'a été reçu dans d'autres pays d'éclosion au moment de la rédaction de ce bulletin, mais aucune activité importante n'est prévue.

Criquet migrateur capito, (LMC): Aucune mise à jour n'a été reçue, mais les activités du LMC commencent généralement au pied de la saison des pluies (octobre-novembre à Madagascar).

Le criquet arborial, *Anacridium spp.*: (ASP): Aucune activité ASP n'a été signalée.

Criquet Amérique centrale (CAL): CAL est resté calme et seuls de faibles effectifs d'ailés solitaires ont été détectés en Amérique centrale.

Criquet d'Amérique du Sud, *Schistocerca cancellata* (SAL): Aucune mise à jour n'a été reçue et aucune activité n'est prévue.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): Les activités acridiennes ont été calmes dans la région CCA et le resteront jusqu'au printemps.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*, J. E. Smith) (FAW): Des épidémies de FAW ont continué d'affecter le maïs au Malawi et en Zambie, où les agriculteurs concernés ont mené des actions de lutte avec l'aide de leurs ministères de l'Agriculture respectifs.

Chenille Légionnaire Africaine (*Spodoptera exempta*) (AAW): Des foyers d'AAW ont été signalés dans le pays de Kisumu au Kenya et dans plusieurs régions de Tanzanie et les agriculteurs touchés ont mené des opérations de lutte avec l'aide de leurs ministères de l'Agriculture respectifs.

***Quelea specis oiseaux* (QSP):** Des foyers de QSP ont été signalés attaquant le riz au Kenya et dans plusieurs régions de Tanzanie, et des opérations de lutte ont été menées à l'aide d'avions de pulvérisation DLCO-EA.

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 / TPQ surveille régulièrement les ETOP en étroite collaboration avec son réseau de MoA / 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 sur les dernières pages). Fin de résumé.

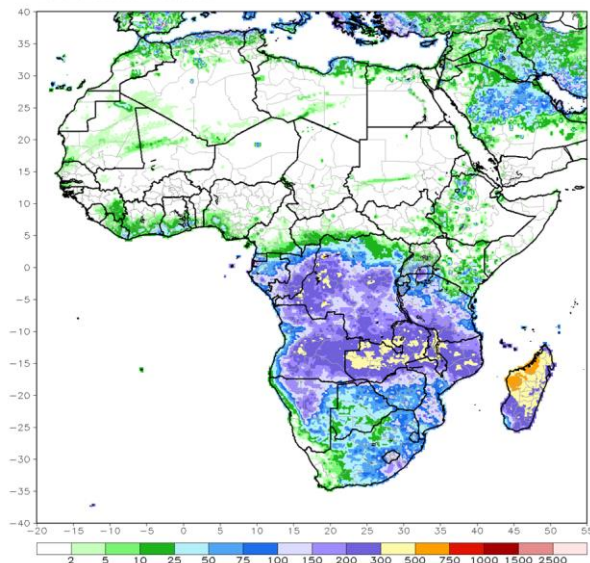
Note: All ETOP Bulletins, including previous issues can be accessed and downloaded on USAID Pest and Pesticide Monitoring website: [USAID Pest and Pesticide Monitoring](#)

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

Weather and Ecological Conditions

in East Africa, above-average rainfall was observed over south-central Uganda, pockets of central and southeastern Kenya, pockets of northwestern Ethiopia, west-central Burundi, and pockets of central, northwestern, and eastern Tanzania. Rainfall was below-average over southwestern Ethiopia, most of western and southwestern Kenya, Rwanda, eastern Burundi, and parts of west-central, northeastern, and southeastern Tanzania.

RFE2 30-Day Total Rainfall (mm)
Period: 31Dec2022 - 29Jan2023



In southern Africa, above-average rainfall was observed over much of central, south-central, and most of northern Angola, southeastern South Africa, central and north-central Namibia (as

well as eastern portions of the Caprivi Strip), northwestern and south-central Mozambique, central and northern Malawi, most of Zambia, and central, northwestern, and southeastern Madagascar. Below normal precipitation was observed over southeastern and west-central Angola, northeastern, western, and southeastern Namibia, pockets of southwestern and northeastern Zambia, pockets of central, eastern, and southwestern Mozambique, most of Zimbabwe, most of Botswana north-central and eastern South Africa, Eswatini, and northeastern and southwestern Madagascar.

In, COR, most of the winter breeding areas are e-precipitation, and only light to moderate rains occurred the first day of January in some parts of southern Tehama between Al Qutai and Zabid and a few places south of Al Zuhra district and in most areas of Tehama coastal plains between Abs and Zabid where vegetation is still green. Some locations in the central Tehama near Al Qutai Vegetation is dry in most of Gulf of Aden Gulf coastal areas except one location between Am Rijaa and Ahwar.

In the Western Outbreak Region (WOR), during January, ecological conditions remained unfavorable in most of the winter, spring and summer breeding and remission areas across the region - in Burkina Faso, Chad, Libya, Mali, and Niger. Some green vegetation was persisted in a few wadis. In Tunisia a few light showers were recorded during January in the North and southeastern parts of the country causing ecological conditions to remain unfavorable for the survival and reproduction of the SGR.

In Algeria, during January, the average maximum and minimum temperatures

showed a significant drop in the North, Sahara, and extreme South, respectively, compared to the previous month. Ecological conditions remained unfavorable except in a few places inside the in the periphery of irrigated agricultural areas in Tamanrasset and Adrar where the annual vegetation remained green.

In Mauritania, ecological conditions are unfavorable for the development of locusts in most of the SGR breeding areas except in a few places in Adrar, Inchiri and Tiris Zemmour where annual vegetation persists.

In Morocco, ecological conditions remain favorable in Aousserd, Bir Anzarane, Bir Gandouz, Tichla and El Argoub in the southern part of the country for the survival and reproduction of the SGR.

Most of the NSE outbreak regions recorded light showers to heavy rain – 19 ml in Buzi, 20 in Caia (Dimba plains), 21 ml in Mafambisse (Buzi plain), 22 in Gorongosa (Gorongosa plain), and 23 ml in Dimba in Mozambique; 211.3 ml in Masenge (Wembere Plain), 272.4 in Muze (Rukwa Valley), and 489.9 ml in Kaliua (Malgarasi Plain) in Tanzania, and 565.2 ml in Namwala (Kafue Flats) Zambia during January (Kafue Flats and its catchment areas received above normal rains resulting in flooding of the NSE outbreak area). In CCA, the weather condition remained cold and dry.

Precipitation remained low in locust breeding regions in Central and South America.

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

The **Desert Locust** (*Schistoseca gregaria* - **SGR²**): In COR, the SGR situation remained generally calm. In Yemen, DLMCC deployed 5 teams and carried out survey operations in winter breeding areas along the Red Sea coastal plains, the Aden Gulf, and the Arabian Sea coastal plains during the 1st dekad of January covering 178,460 ha. During the survey, the team made 1,667 stops, and detected low numbers of isolated solitary immature and mature adults at 251 locations in Tehama coastal plains between Abs and Zabid on the Red Sea coastal plains. Solitary adults were also detected at 7 locations between Am Rija in Lahijj Province and Ahwar in Abyan on the Gulf of Aden coasts.

In Ethiopia, no locusts were reported in winter breeding areas in the southern, southeastern, and southwestern parts of the country where the soil and vegetation are bone and ecological conditions are unfavorable. No locusts were reported in Oman. No updates were received in Djibouti, Egypt, Eritrea, Kenya, Somalia, or Sudan, however, insignificant number for adults and perhaps hoppers may be present in winter breeding areas in Sudan where limited numbers were reported during previous month, and solitary adults may be present in adjacent areas in Eritrea.

Forecast: In COR, will generally remain calm and only insignificant activities may occur in Yemen in winter breeding areas along the Red Sea and Gulf of Aden

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

coastal areas and perhaps, the Red Sea region in Sudan.

SGR – WOR: In WOR, the SGR situation remained generally calm and only a few immature and mature adults and low-density hoppers were detected.

In Algeria, apart from insignificant number of isolated immature and mature adults that were observed near irrigated areas in Adrar and Tamanrasset, no locusts were detected elsewhere, and control operations were not launched in the country during this month.

In Mauritania, the SGR condition showed a marked decrease of treatable targets, and only a few immature and mature adults were controlled on a total of 35 ha at two locations in the Lemseidi sector (19°33'N/13°19'W), and elsewhere, a few scattered adults and at times mixed with low-density of different instar hoppers were observed (close to 4,883 ha were treated since the season's control operations began in the country).

In Morocco, survey operations continued in Bir Anzarane, Aousserd, Bir Gandouz, Tichla, northeast of Dakhla, northeast of El Argoub, Imlili and Gueltat Zemmour, and solitaro-transiens, immature, maturing and mature adults, some of which were copulating, scattered, or grouped, sometimes mixed with low-density solitaro-transiens 3rd-5th instar hoppers, with varying densities of 500 adults/ha and from 50 to 200 hoppers per hectare over areas ranging from 4 to 82 hectares. In addition, other immature, maturing and mature Desert Locust solitarious and solitaro-transiens adults, isolated or scattered, sometimes mixed with low numbers of solitaro-transiens

hoppers at L3-L5 instars, were observed at 211 sites out of 317 surveyed. Adult densities varied between 02 and 300/ha in 5 to 30 ha (especially in the Aousserd area) and between 3 to 241 adults/ha in areas varying from 4-100 ha. Ground control operations were carried out against scattered and groups of solitaro-transiens adults and low-numbers of hoppers on 467 ha in five areas in southern Morocco between January 1-31 using Decis 12.5 ULV (Deltamethrin) (Control operations covered 1,029 ha since December 16, 2022.)

No locusts were observed in in the border areas with Mali and Niger in Burkina Faso, in Chad, Libya, Mali, Niger or Tunisia during this month.

Forecast: Overall, the SGR situation will remain generally calm in WOR, and significant activities are not expected during forecast period. In Morocco, the presence of small groups of immature, mature and dispersing adults and control operations were effective, and a significant increase is unlikely in the coming weeks. Hence, unless undetected new infestations appear, the decline in the locust situation will continue in the coming weeks. That said, the forecasting model shows that the next hatching is expected to occur during the 1st half of February which suggests that routine monitoring remains in effect during the month.

In Algeria, SGR activities are not expected, however, an increase in immature adults is expected in the central Sahara regions following the seasonal shift in locust movements from winter breeding areas in northern Mauritania, and thus, monitoring and

surveillance remain essential to abate any unexpected population increase.

The SGR situation will remain generally calm in Burkina Faso, Chad, Libya, Mali, Niger, and Tunisia during the coming weeks. However, some activities could occur in a few sites that are still green and require monitoring.

SGR - EOR: The EOR region remained calm.

Forecast: Significant development is not likely during the forecast period.

NOTE – Advanced Technologies for ETOP Surveillance, Early Warning and Forecasting Enhance Effective ETOP Management:

Though at a relatively early stage for large-scale ETOP interventions, innovative technologies, such as drones, for high-resolution images in remote and hard-to-reach inaccessible areas are being explored. On trial bases, use of drones for locust monitoring, and surgical and localized control in sensitive, and hard to reach areas showed promising results. While the range of agriculture-oriented drones may be limited for large-scale area-wide ETOP interventions, such as controlling massive swarms and hopper bands, countries and partners have expressed interests to pursue supporting work on key parameters associated with these technologies, including permitting protocols for air space access 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 and biotope modeling, from CIRAD and ICIPE, respectively, and accounting for associated parameters such as soil

*moisture, vegetation index, etc. that involved multiple partners – USAID, Penn-FAO, NOAA, NASA, CIRAD, ICIPE, National and International Research institutions, academia, private 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): Heavy to moderate and light rainfall that was reported in the primary outbreak areas in Mozambique, Tanzania and Zambia is expected to have created favorable conditions for the residual populations to commence successful breeding in Lake Chilwa/Lake Chiuta plains, Mpatsanjoka Dambo in Malawi; IkuuKatavi plains, Malagarasi Basin, Rukwa Valley and Bahi Valley in Tanzania; Buzi-Gorongosa plains and Dimba plains in Mozambique; and Lukanga Swamps in Zambia. Hopper bands are expected to start appearing from February/March 2023. Flooding that occurred in the NSE outbreak areas in Kafue Flats and its catchment areas in Zambia that received above normal rains will likely affect NSE breeding. It is critical to continue monitoring and surveillance of all outbreak areas to facilitate timely preventive control interventions of hoppers and thereby avoid crop and pasture damage.

Forecast: NSE hoppers and bands are likely to form in outbreak areas in the primary outbreak areas in Tanzania, Malawi, Mozambique, and Zambia where significant residual parental populations persisted before the onset of the seasonal rains. Although the flooding that occurred in the Kafue Flats in Zambia might reduce formation of larger hopper bands, continued monitoring and

surveillance is critical to facilitate timely preventive control interventions in all outbreak areas.

Ensuring that adequate resources are available to enable IRLCO-CSA and NPPD undertake timely surveillance and launch preventive interventions to abate development of potentially significant locust populations that could inflict severe damage to crops and pasture remain important.

African Migratory Locust (LMI - AML): Scattered African Migratory Locust (AML) populations (1-3 locusts/m²) persisted in Simalaha plains, Zambia.

Forecast: Significant activities of LMI is unlikely during the forecast period.

Malagasy locust (Locust migratoria capito – LMC): No LMC activities were reported during this month although ecological conditions have improved in some breeding areas.

Forecast: LMC may appear in areas with favorable ecological conditions on a small-scale, but significant development is not expected.

Central American Locust - Schistocerca piceifrons (CAL): CAL remained calm and only low numbers of solitary adults were detected in Central America.

Forecast: Significant CAL development is not expected during the forecast period. However, detailed CAL risk analysis maps and routine monitoring of environmental variables are maintained to minimize any possible risk from

significant concentrations of CAL populations from agricultural slashing in March-April.

[Note: CAL is a serious pest in 10 states in Mexico (Campeche, Chiapas, Hidalgo, Oaxaca, San Luis Potosí, Tabasco, Tamaulipas, Veracruz, Quintana Roo and Yucatán - MoA/México), and in CA region, and it is 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 (Pech, CESVY-SENASICA, Mexico)

South American Locust, Schistocerca cancellata (SAL) (a.k.a. Flying lobster): No update was received at the time this bulletin was compiled and significant develop is not expected.

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locust activities remained calm in the CCA region and will remain so till next spring.

Fall armyworm (FAW): FAW has become a new resident pest in several countries across the globe outside its origin, the Americas since it first appearance outside its original habitat in 2016 and continues posing threats and damages to field and irrigated crops.

During January, the pest was reported with 20% threshold level on rain-fed maize in all districts of Malawi, where affected farmers were assisted with material and technical support from the Ministry of Agriculture. Various levels of FAW of infestations were also reported in all 10 Provinces of Zambia where the United Nations Food and Agriculture Organization (FAO) and the Ministry of Agriculture distributed 1,000 pheromone traps with more than 5,000 lures and

5,000 pesticide containing sticky traps to 116 districts that were affected by the pest. GoZ also distributed pesticides to the affected farmers in areas to control the pest.

No FAW infestations were reported in Kenya, Mozambique, Tanzania, or Zimbabwe or elsewhere. However, it is likely the pest persisted in irrigated and seasonal crops in areas that were not surveyed or reported at time this bulletin was compiled.

Forecast: FAW is likely to continue being a problem to irrigated and in season field crops across the globe. Continued surveillance, monitoring, early warning, and timely preventive interventions remain critical to minimize any major threats/damage it may pose to crops and pasture.

FAO-led Global Action for Fall Armyworm Control

NOTE: The Food and Agriculture Organization of the United Nations (FAO) is actively engaged in a transformative, coordinated Global Action for Fall Armyworm Control (GAFC) which it launched in December 2019 as an urgent response to the rapid spread of FAW. GAFC is intended to be implemented in 65 [target] countries across Africa, Near East and Asia-Pacific from 2020 to 2022: [FAW Secretariat, Global Action on FAW Control](#). GAFC is a pioneering initiative that aims to take radical, direct, and coordinated measures to fight FAW at a global level. Its three key objectives are: 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).

BHA/TPQ is collaborating closely with various partners to benefit farming communities and host-gov partners with the intention to scaling up and spreading gains across different FAW prone regions, consistent with the spirit of GAFC and host-country strategies. These initiatives build on experiences gained over the past several years, including outcomes of projects and programs supported through USAID legacy OFDA, legacy BFS, national partners, CGIARs, FAO, and several other entities.

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Map of the worldwide spread of FAW since 2016 (as of 2022) (FAO-GAFC)

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Note: Several species of natural enemies of FAW have been identified in Ethiopia, Kenya, Tanzania, Madagascar, India, China, and elsewhere and have been under rigorous investigations to determine their efficacy, effectiveness, environmental impacts, safety, and other relevant parameters and some have been put to use as part of an IPM approach. According to FAO's July FAW Newsletter, a package of biological control against FAW was demonstrated in a new video from Syria presented that *Trichogramma pretiosum*, an egg parasitoid, can be mass released to control the FAW egg populations. Bacterial insecticide, *Bacillus thuringiensis* is sprayed four to five days after a *Trichogramma pretiosum* parasitoid was released to control any surviving FAW larvae. The third component in the package is a mass release of a larval parasitoid *Habrobracon hebetor* that further disrupts the life cycle of the pest (FAW). Ecologically safer alternatives are also being tried and utilized to prevent, mitigate FAW in many countries across the globe [Biocontrol on FAW Nepal](#) **End note.**

African Armyworm (Spodoptera exempta, Walker) (AAW): AAW infestations continued in Kenya, Tanzania, and Zimbabwe. In Kenya the pest was reported attacking maize and pasture in Bungoma, Bomet, Busia Counties and persisted in Narok County. Affected farmers carried out control operations with technical and material assistance from the Ministry of Agriculture. In Tanzania, the pest was reported in Mwanza, Mbeya, Songwe, Kigoma, Morogoro, Tabora and Rukwa regions during January where affected farmers launched out control operations with technical and material assistance from Ministry of Agriculture. In Zimbabwe, AAW was reported attacking

Maize, Sorghum and pasture in Mbire District, Mashonaland Central Province and affected farmers carried out control operations with technical and material assistance from the Ministry of Agriculture. AAW present was not reported in Malawi, Mozambique, and Zambia during this month.

Forecast: AAW is in season in Southern and East Africa and breeding and infestations are expected to continue appearing in the regions. Aggressive monitoring, and trap managements remain critical to avert major threats.

It is to be recalled that USAID legacy OFDA through DLCO-EA and other partners supported material and technical support to train farmers and technical staff in AAW identification, detection, monitoring, surveillance, trap operations and management, reporting as well as control operations. DLCO-EA has since intensified AAW management interventions through technical and material support (e.g., distribution of IEC materials on AAW) to its member-states.

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

Quelea species (QSP): QSP birds were reported attacking rice in Nyatini, Gem Rae, Ahero, West Kano and Awach in Kisumu County in Kenya, and in Babati and Simanjiro Districts of Manyara Region in Tanzania. Aerial control operations were launched using DLCO-EA spray aircraft. In Ethiopia, QSP outbreaks were reported threatening irrigated wheat crops in Oromia Administrative Region

and MoA/PPD and DLCO-EA were coordinating deployment of a DLCO-EA spray aircraft to control the pest. No QSP activities were reported in Eritrea, Somalia, Sudan, Uganda, or other countries in COR during this month and QSP prone countries during this month.

Forecast: QSP outbreaks are likely to continue being a problem to small grain cereals in Kenya, Tanzania, and elsewhere where small grain crops are out in the field, and preventive control interventions remain critical to minimize curative control and abate any major crop damage.

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 update was received during this month, but the pest remains being a problem to pre- and post-harvest crops across regions.

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 [Climate and ETOPs End note](#); Scientific review of the impact of climate change on plant pests – A global challenge to prevent and mitigate plant pest risks in agriculture, forestry, and ecosystems. Rome. FAO on behalf of the IPPC Secretariat. <https://www.fao.org/documents/card/en/c/cb4769en>.

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 as well as launch control interventions in a timely manner. Regular crop scouting is critical to avoid damage /losses. Invasion countries must also remain 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 and reports with stakeholders, including neighboring countries, and humanitarian and development partners, etc., as early and

often as possible. Lead farmers, field scouts, community forecasters and others must remain vigilant and report ETOP detections to relevant authorities in their jurisdictions as quickly 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 continues its effort in strengthening national and regional capacity in ETOP prone countries across several regions. These supports for ETOPs include DRR projects on FAW in Eastern Africa, the Horn, the Red Sea region, as well as three major locust species – Moroccan locust, *Italia* locust and the Migratory locust - that continue threatening food security and livelihoods of tens of millions of people across the Caucasus and Central Asia (CCA) countries. These projects focus on strengthening surveillance, monitoring, and management of ETOPs of food security and economic importance, among others.

In Eastern Africa and the Horn, the multi-year DRR project that targets FAW 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 the three major locust species – BHA is co-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 effort in promoting the support for applied and operational research in testing, improving, and expanding innovative technologies to help minimize the impacts of ETOPs on food security and livelihoods of vulnerable people and communities across low-income countries and regions and encourages collaboration among countries and potential partners. Through these efforts, spread of the ETOPs among and between 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 overhauled. FAO is implementing an updated version of the PSMS with a more user-friendly diligental mode. Thanks to the system, SGR frontline countries and others have been able to effectively manage their strategic [pesticide] stocks and avoid accumulations of unnecessary and toxic stockpiles as well as empty pesticide containers that pose a serious threat to the human health, the environment and non-target and beneficial organisms.

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, the Agency policies, and procedures, to help minimize health risks and environmental pollution associated with misuse and mismanagement of pesticides and pesticide containers, improve safer and effective pest control interventions. An informed procurement and use as well as judiciously executed triangulations of surplus stocks between countries is worth considering.

Inventory of Strategic Pesticide Stocks for SGR Control

During January, strategic pesticide stocks (SPS) for SGR was reduced just by 502 l (35 l used in Mauritania and 467 l in Morocco).

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, 43,181~
Eritrea	10,750~
Ethiopia	56,200
Libya	24,930~
Kenya	?
Madagascar	9,335~+
Mali	240~
Mauritania	32,000 + 316.5kg ^{GM}
Morocco	3,411,345 ^D
~Niger	62,000
Oman	5,000~
Saudi Arabia	23,379~
Senegal	156,000~
Somalia	?
Sudan	95,000~
South Sudan	?
Tunisia	62,200 ^{OB} +200 ^{OBML} +1,025 ^{LV}

Uganda	?
Yemen	10,000; 180kg ^{GM} ~
*Includes different pesticides and formulations - ULV, EC and dust.	
~ data may not be current	
+ = other MoA stocks are not included	
? = data not available	
^{GM} = GreenMuscle™ (fungal-based biological pesticide, e.g., NOVACRID)	
^{OB} = obsolete	
^{ML} = malathion	
^{LV} = Larvos	

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 in the same direction*
- ASARECA *Association for Strengthening Agricultural Research in Eastern and Central Africa*
- BHA *Bureau for Humanitarian Assistance (USAID)*
- 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	<i>Calliptamus italicus</i> (Italian Locust)		
CLCPRO	Commission de Lutte Contre le Criquet 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	<i>Chortoicetes terminifera</i> (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	<i>Dociostaurus maroccanus</i> (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	<i>Spodoptera frugiperda</i> (SFR) (Fall armyworm (FAW))		
Fledgling	immature adult locust /grasshopper that has 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	<i>Locustana pardalina</i>		
LMC/ML	<i>Locusta migratoriacapito</i> (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
PHS Plant Health Services
PSPM Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)
TPQ Technical and 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 United 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

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To learn more about our activities and programs, please, visit our web page: [USAID/BHA/P&PM PAGE](#) or [USAID/BHA PPM](#)

Additional resources on ETOPs

USAID/BHA Pest and Pesticide Monitoring and ETOP Bulletins: [USAID/BHA PPM](#) and /or [BHA/P&PM PAGE](#) (being transformed)

USAID Pest Management Guidelines [USAID PM Guidelines](#)

[IPM](#)

[US EPA IPM](#)

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](#)

[FAW GAFC Map 2022](#)

AAW:

[Armyworm](#)

Famine Early Warning System Network
[FEWS NET](#)

NOAA Climate Prediction Center [NOAA CPC](#)