

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

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR¹**): The SGR situation remained generally calm in the Central Outbreak Region (COR) during August. Only some immature and mature adult groups were detected in the River Nile and Northern states and controlled on 53 ha in Sudan. In Ethiopia, several mobile small immature swarms were detected in the Afar, Amhara, Oromia, and Tigray administrative regions and controlled on some 1,000 ha (625 ha chem and the rest by physical means). A few solitary adults were detected in northwest Somalia. Isolated mature adults were reported in Lake Nasser in Egypt, and immature adult groups were treated in the northern highland in Eritrea. In Yemen, a few adult groups were detected in Hadhramaut and Shabwa and one group at Wadi Al Khoon was conserved copulating. In the Western Outbreak Region (WOR), low numbers of isolated immature adults were reported in Adrar central Algeria and immature adults were controlled on 66 ha in southeast Morocco. Immature and mature adults were reported in southwest, central, and southeast Mauritania and isolated immature and mature adults were detected in central pasture areas in Tasker South Ténéré Niger. No locusts were reported in Burkina Faso, Chad, Libya, Senegal, or Tunisia. In the Eastern Outbreak Region (EOR), isolated immature and mature adults were detected in Tharparkar, Nara and Cholistan deserts near Indo-Pakistan area.

Forecast: In COR, small-scale breeding is likely in the interior and the Red Sea coast of Yemen, but major activities are not expected due to unfavorable ecological conditions and lack of substantive parental populations. Limited breeding with hatching and hopper development is likely in Sudan and perhaps western lowlands in Eritrea. Adults may persist and form a few small swarms in northeastern/eastern Ethiopia and northwest Somalia. In WOR, isolated small-scale breeding is likely in areas where ecological conditions are favorable and parental populations are present. In EOR, limited breeding may occur along the India and Pakistan borders. A single generation of summer breeding with low numbers of hatching and hoppers is likely.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (NSE): Isolated, low density concentrations of NSE were reported in Malawi, Mozambique, Tanzania, and Zambia.

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

African Migratory Locust (*Locusta migratoria migratorioides*) (**LMI - AML**): Isolated adult AML were detected in Zambia and Zimbabwe.

Malagasy locust (*Locust migrator capito*) (**LMC**): No update was received during this month and activities are not expected.

Tree locusts, *Anacridiums spp.* (**ASP**): No ASP were reported during this month.

Central American Locust, *Schistocerca piceifera* (CAL): Precipitation is improving, and CAL population is expected to increase in northeast Mexico, western Guatemala (bordering El Salvador). CAL was also reported in several regions of Peru and controlled through July.

South American Locust, *Schistocerca cancellata* (**SAL**): No locusts were reported, and the situation remained calm.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): DMA has come to an end almost everywhere in the CCA. CIT continued developing in Caucasus and the Russian Federation; LMI is hatching, and hoppers and bands are forming in Kazakhstan and the Russian Federation; control operations continued.

Fall Armyworm (*Spodoptera frugiperda*, J. E. Smith) (**FAW**): Limited infestations of FAW were reported in a few irrigated maize fields in Malawi, Zambia, and Zimbabwe.

African Armyworm (*Spodoptera exempta*) (**AAW**): AAW infestations were not reported in all outbreak areas during this time.

Quelea species (**QSP**): QSP outbreaks were reported in a few places in Malawi, Tanzania and Zimbabwe.

Active ETOP surveillance, monitoring, information sharing, and executing timely preventive interventions remain critical to abate the threats GETOPs pose to food security and livelihoods of vulnerable people and communities.

USAID/BHA/TPQ regularly monitors GETOPs in close collaboration with its global network of National MoA PPDs/DPVs/PHSs, regional and international pest monitoring and control entities, FAO, CLCPRO, CRC, DLCO-EA, and IRLCO-CSA, research centers, academia, private sector, civil societies, NGOs and others, and compiles and issues monthly analytical GETOP Bulletins (please refer to list of acronyms on the last few pages). **End summary**

RÉSUMÉ EN FRANÇAIS

La situation du Criquet pèlerin (*Schistoseca gregaria* SGR): La situation du SGR est restée globalement calme dans la région épidémique centrale (COR) en août. Seuls quelques groupes d'ailés immatures et matures ont été détectés dans les États du Nil et du Nord et contrôlés sur 53 ha au Soudan. En Éthiopie, plusieurs petits essaims immatures mobiles ont été détectés dans les régions administratives d'Afar, Amhara, Oromia et Tigray et contrôlés sur environ 1 000 ha (625 ha chimiquement et le reste par des moyens physiques). Quelques adultes solitaires ont été détectés dans le nord-ouest de la Somalie. Des adultes matures isolés ont été signalés dans le lac Nasser en Égypte, et des groupes d'adultes immatures ont été traités dans les hautes terres du nord de l'Érythrée. Au Yémen, quelques groupes d'ailés ont été détectés dans l'Hadramaut et le Shabwa et un groupe à Wadi Al Khoon a été conservé en train de copulant. Dans la région occidentale de l'épidémie (WOR), de faibles effectifs d'ailés immatures isolés ont été signalés dans l'Adrar, au centre de l'Algérie, et des ailés immatures ont été contrôlés sur 66 ha dans le sud-est du Maroc. Des adultes immatures et matures ont été signalés dans le sud-ouest, le centre et le sud-est de la Mauritanie et des adultes immatures et matures isolés ont été détectés dans les zones de pâturage centrales de Tasker Sud Ténéré Niger. Aucun criquet n'a été signalé au Burkina Faso, au Tchad, en Libye, au Sénégal ou en Tunisie. Dans la région épidémique orientale (EOR), des adultes isolés immatures et matures ont été détectés dans les déserts du Tharparkar, de Nara et du Cholistan, près de la zone indo-pakistanaise.

Prévisions: Dans la région du COR, une reproduction à petite échelle est probable dans l'intérieur et sur la côte de la mer Rouge au Yémen, mais aucune activité majeure n'est attendue en raison de conditions écologiques défavorables et du manque de populations parentales substantielles. Une reproduction limitée avec éclosions et développement larvaire est probable au Soudan et peut-être dans les basses terres occidentales de l'Érythrée. Les ailés peuvent persister et former quelques petits essaims dans le nord-est/est de l'Éthiopie et le nord-ouest de la Somalie. Dans la région WOR, une reproduction isolée à petite échelle est probable dans les zones où les conditions écologiques sont favorables et où des populations parentales sont présentes. Dans l'EOR, une reproduction limitée pourrait avoir lieu le long des frontières avec l'Inde et le Pakistan. Une seule génération de reproduction estivale avec un faible nombre d'éclosions et de larves est probable.

Criquet nomade (*Nomadacris septemfasciata* - NSE): Des concentrations isolées et de faible densité de NSE ont été signalées au Malawi, au Mozambique, en Tanzanie et en Zambie.

Criquet migrateur africain (AML/LMI): migratorioides) (LMI – AML): Des AML adultes isolés ont été détectés en Zambie et au Zimbabwe.

Criquet migrateur capito, (LMC): Aucune mise à jour n'a été reçue au cours de ce mois et des activités sont attendues.

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

Langosta Centroamericana, Schistocerca piceifrons (CAL) (Criquet Amérique centrale (CAL)): Les précipitations s'améliorent et la population de CAL devrait augmenter dans le nord-est du Mexique et l'ouest du Guatemala (à la frontière du Salvador).

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):

Le DMA a pris fin presque partout dans la CCA. CIT a poursuivi son développement dans le Caucase et la Fédération de Russie; LMI est en train d'éclore et des larves et des bandes se forment au Kazakhstan et dans la Fédération de Russie; les opérations de lutte se sont poursuivies.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*, J. E. Smith) (FAW):

Des infestations limitées de chenille légionnaire d'automne ont été signalées dans quelques champs de maïs irrigués au Malawi, en Zambie et au Zimbabwe.

Chenille Légionnaire Africaine (*Spodoptera exempta*) (AAW): Des infestations de chenille légionnaire africaine n'ont pas été signalées dans toutes les zones d'épidémie pendant cette période.

Quelea species oiseaux (QSP): Des foyers de QSP ont été signalés dans quelques endroits au Malawi, en Tanzanie et au Zimbabwe.

La surveillance active des ETOP, le suivi, le partage d'informations et l'exécution d'interventions préventives en temps opportun restent essentiels pour réduire les menaces que les GETOP font peser sur la sécurité alimentaire et les moyens de subsistance des personnes et des communautés vulnérables.

USAID / BHA / TPQ surveille régulièrement les GETOP en étroite collaboration avec son réseau mondial de PPD/DPV/PHS nationaux du MoA, les entités régionales et internationales de surveillance et de contrôle des ravageurs, la FAO, la CLCPRO, le CRC, la DLCO-EA et l'IRLCO-CSA, les centres de recherche , le milieu universitaire, le secteur privé, la société civile, les ONG et autres, et compile et publie des bulletins analytiques mensuels GETOP (veuillez vous référer à la liste des acronymes sur les dernières pages). Fin du résumé

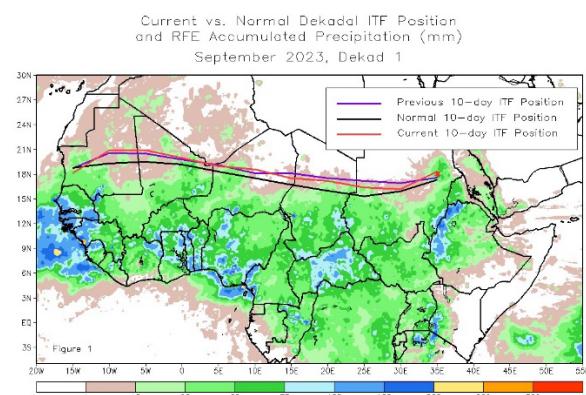
Note: All GETOP Bulletins can be accessed here: [USAID Pest and Pesticide Monitoring](#)

Additional GETOP resources can be found on the last pages.

Weather and Ecological Conditions

From 1-10 September, the ITF propagated slightly south relative to the previous position along its eastern half, while it returned slightly to the north in West Africa. The western (10W-10E) portion of the ITF was located approximately at 19.9N, which was north of the climatological position by 1.1 degree. Also, at the eastern (20E-35E) portion, the ITF was approximated at 17.0N, which was above the long-term average position by 0.9 degrees. Figure 1 displays the current position of the ITF relative to the climatological position during the 1st dekad of September and its previous position during the 3rd dekad of August.

Figure 1.



Figures 2 and 3 are time series, illustrating the latitudinal positions for the western and eastern portions of the ITF, respectively, and their seasonal evolutions since the beginning of April 2023.

Figure 2.

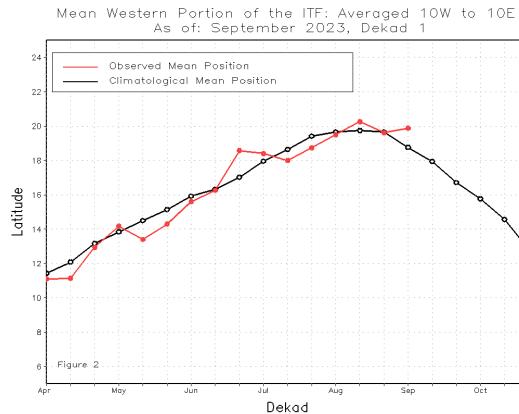
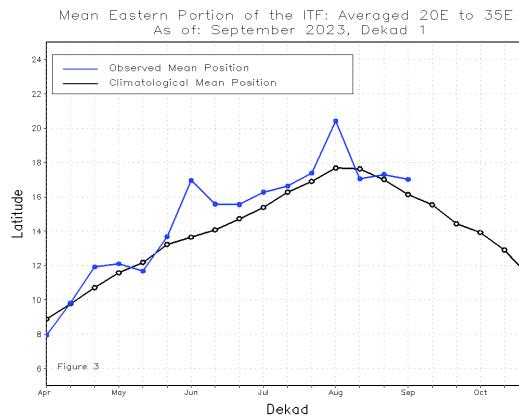
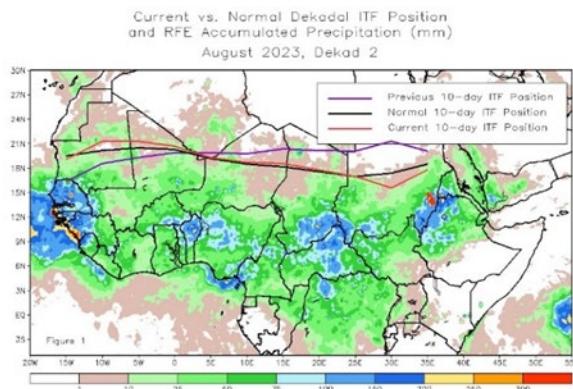


Figure 3.

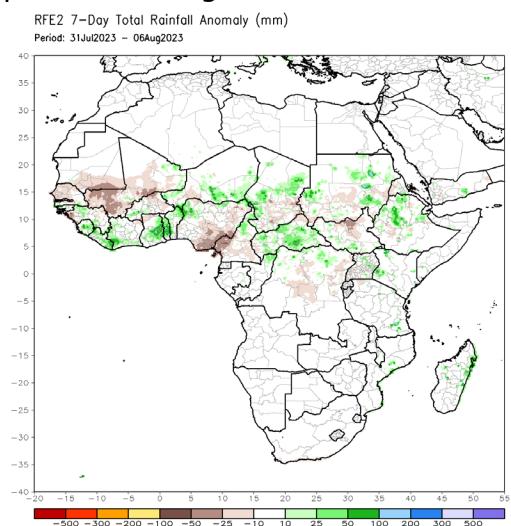


From 11-20 August, the Intertropical Front (TF) moved north (south) relative to the western (eastern) side of the previous position. The western (10W-10E) portion of the ITF was located approximately at 20.3N, which was above the climatological position by 0.6 degree. Also, at the eastern (20E-35E) portion, the ITF was approximated at 17.0N, which was below the long-term average position by 0.6 degree. Figure 1 displays the current position of the ITF relative to the climatological position during the 2nd dekad and its position during the 1st dekad of August.



During the 3rd week of August, above-normal rainfall was predicted over the western portion of the Sahel region, eastern Sudan, and northern Ethiopia; there is a chance for below-normal rainfall in the Lake Victoria region, and south southwestern and central Ethiopia.

During the 2nd week of August, above-normal rainfall occurred across the central and eastern portions of the Sahel region, including southern and eastern Sudan, western Ethiopia, and South Sudan and below-normal rainfall over parts of Senegal and southern Mauritania.



During the 1st week of August, rainfall was above average over the far western and eastern Sudan, and southern South Sudan, and central and northern Ethiopia. Below-average rainfall was observed over parts of central Sudan, and northcentral

South Sudan. Below-average rainfall was observed southern Chad. Rainfall was below-average over much of Senegal, western and southern Mali, Burkina Faso.

During the last week of July, rainfall was above average over pockets of Sudan, northern South Sudan, and southwestern Ethiopia. Below-average rainfall was observed over southern South Sudan, northern and eastern Ethiopia, and much of Eritrea. In Central Africa, rainfall was above average over pockets of southern Chad and below average in southwestern part. In West Africa, above-average rainfall was observed over southern Mauritania, western Senegal, pockets of Mali, but below-average over eastern Senegal, southwestern Mali, and western Burkina Faso.

The weather conditions in the NSE outbreak areas remained dry during the August with vegetation burning continued in all the outbreak areas.

Weather prediction for Central Asia and the Caucasus region:

From 6-12 July northern Kazakhstan and Kyrgyzstan received light to moderate rainfall (5-25mm total in 7 days). Monsoon related rainfall remained robust in southeastern Afghanistan, and central and northern Pakistan. As western and northern Afghanistan, southern and eastern Turkmenistan, and central Uzbekistan are well into their dry seasons. Rainfall deficits existed during that time in eastern Uzbekistan, western and northern Tajikistan, Kyrgyzstan, and north-central, northeastern, south-central, and southeastern Kazakhstan where rains persist into the summer. A drought polygon in Kazakhstan's regions where 25 to >85% of cropland affected by severe drought conditions with negative ground impacts reflected in vegetation health in those regions. Heavy rainfall on 22 July

and moderate to heavy precipitation across east, southeast, central, and south parts of Afghanistan the country and Pakistan, and east Kazakhstan from 25-31 July, [Climate Prediction Center CA](#); light to moderate precipitation observed across northern, eastern and western Kazakhstan, northern Kyrgyzstan and eastern Tajikistan; precipitation deficit affected vegetation health. Moderate to heavy precipitation in the forecast across northern Pakistan, northern Kazakhstan, western, northern, and eastern Kyrgyzstan, and several parts of Afghanistan during the 1st dekad of August.

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

The **Desert Locust** (*Schistoseca gregaria* - **SGR**²): In COR, the SGR situation remained generally calm. In Ethiopia, several small swarms were detected in the Afar, and the eastern escarpments of the Amhara and Tigray administrative regions. Survey operations covered 105,621 and ground control operations through chemical and physical means covered close to 1,400 ha in areas accessible in Amhara Admin Region (400 ha physical) and 625 ha in Tigray and Oromia Admin Regions and Dire Dawa city outskirts (332 ha were covered by physical means). Chemical control was not possible in the Afar region due to community concerns. Resource diversions remain a concern among [PPD] staff, particularly vehicles, which are in high demand, to the command post in the Amhara administrative region, a situation that could significantly undermine active surveillance and timely locust control operations.

In Sudan, the SGR situation remained relatively calm during August. Limited ground control operations were carried out on 53 ha against immature and mature adult groups in the River Nile and Northern states. Elsewhere, scattered 1st and 2nd instar hoppers were detected in the River Nile and Red Sea states, copulating gregarious groups and scattered adults and a few immature/mature solitrious and transient adult groups were observed in the River Nile and Red Sea states. Survey operations covered some 119,300 ha in the Northern, River Nile and summer breeding belt in the Red Sea State and parts of Kassala State.

In Yemen, survey operations continued during August in summer breeding areas in the interior of Hadhramaut, Shabwa and Al Mahrah, Marib and in Al -Jawf. The SGR situation remained generally calm and only a few adult groups were detected at 3 locations in Hadhramaut and Shabwa and one group was observed copulating at Wadi Al Khoon. Ecological conditions remained unfavorable to sustain locust presence or breeding in most of the 44,830 ha that were surveyed except in some locations on the Red Sea coast and elsewhere in the interior areas between Al Hazm and Al Ghaydah where good rains fell during August and where low numbers of scattered solitary adults were detected. Near During the first fortnight of August, isolated mature adults were reported in Lake Nasser in Egypt, and immature adult groups were treated in the northern highland area in Eritrea and a few mature adults were reported in the northwest part of Somalia.

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

Forecast: In COR, during the forecast period, limited breeding is likely in the interior of Sudan, the western lowlands of Eritrea, in the interior at Hadhramaut Valley and on the Red Sea coast where rainfall was reported, and perhaps the lowlands area of northeast and eastern Ethiopia, and northwestern Somalia. In Sudan, hatching is expected through the 1st dekad of September in southwest Deurdeb to east Atbara River and Baiyuda Desert with fledging likely during the last dekad of the month.

SGR – WOR: In WOR, during this month, low numbers of isolated immature adults were detected in Adrar central Algeria and southwest Mauritania, and isolated mature adults were reported in central and southeast Mauritania and Tasker, central pasture area in Niger.

In Morocco, ecological conditions remained unfavorable for the survival and reproduction of the SGR in summer breeding areas in the south and southeast. Only, some immature, solitarious and solitario-transiens adults were located and treated on 66 ha in the Bouarfa area in the southeast (the total areas treated since December 16, 2022, is 38,396 ha).

In Chad, ecological conditions are favorable in the gregarization areas southeast of Fada, Biltine and Mao where heavy rains fell, but Salal and Faya remain unfavorable to sustain SGR reproduction or development.

In Niger, a team that was deployed to South Ténéré reported that the locust situation remained generally calm. Only few isolated mature and immature solitary individuals were detected in parts of the summer breeding and gregarization areas where rainfall was recorded, and ecological conditions are

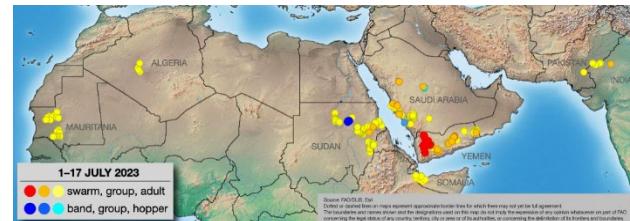
favorable for locusts to breed and develop.

No locusts were reported in Tunisia, Libya, Senegal, or Burkina Faso during this month.

Forecast: In WOR, limited breeding will likely in areas where rainfall in parts of southern Mauritania, northern Mali and Niger, central and northern Chad, and southern Algeria. Burkina Faso, Libya, Senegal, and Tunisia will remain calm during the forecast period.

SGR - EOR: Low numbers of hoppers and adults were detected in Rajasthan, India; few adults with some copulating were observed in Tharparkar, Nara, and Cholistan deserts, Pakistan.

Forecast: Only limited breeding is likely along both sides of the Indo-Pakistan border where the monsoon will withdraw during the end of September.



FAO-ECLO, 7/2023

Red (Nomadic) Locust (NSE):

Isolated, low density concentrations of NSE were reported in Lake Chilwa/Lake Chiuta plains, Mptasanjoka Dambo in Malawi; the Kafue Flats in Zambia; Buzi Gorongosa plains, Dimba plains in Mozambique and in the Ikuu Katavi plains, Malagarasi Basin in Tanzania.

Forecast: NSE populations are likely to concentrate further and form small swarms in the outbreak areas where

vegetation burning would not have taken place.



Fig. 1. Red Locust being sold at Blantyre market.

Fried red locust for sale (IRLCO-CSA, 8/2023)

Adequate resources remain critical to enable IRLCO-CSA and NPPD to undertake timely surveillance and monitoring and launch preventive interventions to curtail the development of significant locust populations that could cause severe damage to crop and pasture.

African Migratory Locust (LMI):

Isolated adult individual AML were located in Simalaha plains in Zambia and in Manicaland Province of Zimbabwe.

Malagasy locust (Locust migratoria capito – LMC): LMC activities were not reported during this month.

Central American Locust - Schistocerca piceifrons (CAL): CAL situation is generally calm in Mexico and Central America. Only low density populations were detected. However, due improved precipitation during August, populations are gradually increasing and expected to continue in the Northeast of Mexico and Western Guatemala (border with El Salvador) and will likely call for control operations during the forecast period. In Peru, the pest was controlled on some 1,021 ha through July (the pest

was surveyed and detected on more than 19,350 ha).

[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, and several species of fruit trees (Pech, CESVY-SENASICA, Mexico)]

South American Locust, Schistocerca cancellata (SAL) (a.k.a. Flying lobster): The situation remained calm.

Italian (CIT), Moroccan (DMA) and

Migratory (LMI) DMA is coming to an end almost everywhere in the CCA. CIT remained developing in Caucasus and the Russian Federation; LMI is hatching, and hoppers and bands are forming in Kazakhstan and the Russian Federation; no crop or pasture damage was reported.

Forecast: DMA lifecycle will end while CIT will continue developing and forming hoppers and bands in Caucasus, the Russian Federation and Kazakhstan. LMI will continue developing in Kazakhstan and the Russian Federation while fledging will occur in other regions. From April through June, 2,077,205 ha are reported treated in CCA showing nearly 30% higher than last year with most increases in CA.

Fall armyworm (FAW): Limited FAW infestations were reported in a few irrigated maize growing regions in Malawi, Zambia and Zimbabwe. No update was received elsewhere where irrigated maize may be present.

elsewhere in field and irrigated maize growing regions.

Forecast: FAW has become a resident pest in several countries across the globe outside its origin, the Americas, since its first appearance outside its original habitat in 2016 and continues posing threats and damages to fields and irrigated crops and likely to continue appearing during the forecast period.

FAO-led Global Action for Fall Armyworm Control

NOTE: The Food and Agriculture Organization of the United Nations (FAO) and CIT 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

are built 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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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 in 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): No updates were received on AAW situation at the time this bulletin was compiled, however, infestations may have continued in the horn in its northern region where tens of thousands of ha were reported attached in June.

Forecast: The AAW likely to continue its appearance in the northern region during the forecast period.

Active surveillance and monitoring remain critical to forecast and report pest presence to plan timely control interventions. Trap management and scouting remain critical to determine population levels and forecasting. It is to be recalled that USAID legacy OFDA through DLCO-EA and host-country partners sponsored a project in East Africa and the host-countries and launched training farmers and technical staff in AAW identification, detection, monitoring, surveillance, trap operations and management, reporting as well as control operations.

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): QSP outbreaks were reported in Nkhata Bay, Karonga, and Chitipa districts in Mzuzu Agricultural Development Division (ADD) of Malawi;

Coastal, Manyara, Tabora and Morogoro Regions in Tanzania and in Manicaland, Mashonaland East and Mashonaland Central Provinces of Zimbabwe. In Tanzania, aerial control was carried out in collaboration with the MoA using DLCO-EA spray aircraft.

Forecast: QSP will likely continue being a problem to small grain cereals in field and irrigated crops across QSP prone regions.

Routine surveillance, monitoring, reporting, and timely preventive control interventions remain critical to minimize the need for significant resources to launch curative control operations and contribute to food security and livelihoods of affected farming communities.

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 a perennial problem to pre- and post-harvest crops across various regions.

NOTE – Advanced Technologies for GETOP Surveillance, Early Warning and Forecasting Enhance Effective GETOP 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 GETOP 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.**

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 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 preventive 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. The supports for GETOPs include 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 GETOPs of food security and economic importance, among others.*

In Eastern Africa and the Horn, the multi-year DRR project that targets community-based FAW monitoring forecasting and early warning continues in five countries (Ethiopia, Malawi, Rwanda, Uganda and Zambia) under the auspice 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 under the leadership of UNFAO in close collaboration with the affected countries in the region [BHA CCA Locust Support](#).

USAID/BHA/TPQ/FSL also supports a DRR project through Arizona State University through integration of alternative locust

and grasshopper management tools into community and National Plant Protection Departments practices. This project is being implemented in West Africa in collaboration with Senegal/PPD, University of Gaston Berker University, St Lous, Senegal, CIRAD, French Institute of Development Research (IRD).

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 benefited participating and other countries across the globe was overhauled. FAO is implementing an updated version of the PSMS with a more user-friendly digital 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 and effective SPS can be established by linking 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 is worth considering.

Inventory of Strategic Pesticide Stocks for SGR Control

During August, SGR strategic pesticide stocks were slightly reduced by 7441 (625 ha in Ethiopia; 66 ha in Morocco and 53 ha in Sudan).

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

Country	Quantity, l/kg
Algeria	1,184,761~
Chad	65,270~
Egypt	9,857 ULV, 43,111~
Eritrea	9,859~
Ethiopia	56,200
Libya	24,930~
Kenya	?
Madagascar	9,335~+
Mali	240~ biopesticides
Mauritania	31,759 + 316.5kg ^{GM}
Morocco	3,375,082, ^D
~Niger	62,000
Oman	5,000~

Saudi Arabia	- 19,136 l ~
Senegal	156,000~
Somalia	?
Sudan	15,000~
South Sudan	?
Tunisia	62,200 ^{OB} +200 ^{OBML} +1,025 ^{LV}
Uganda	?
Yemen	8,530; 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*TM (fungal-based – *Metarhizium acridum* - biological pesticide, e.g., NOVACRID)

^{OB} = obsolete

^{ML} = malathion

^{LV} = Larvos

LIST OF ACRONYMS

AAW	African armyworm (<i>Spodoptera exempta</i>)
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	<i>Anacridium melanorhodon</i> (Tree Locust)
AML	African Migratory (<i>Locusta migratoria migratorioides</i>)
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	<i>Center for Agriculture and Biosciences International</i>	Fledgling	<i>immature adult locust /grasshopper that has the same phenology as mature adults, but lacks fully developed reproductive organs to breed</i>
CAL	<i>Central American Locust</i> <i>Schistocerca piceifrons piceiferons</i>	GM	<i>GreenMuscle® (a Metharhizium fungal-based biopesticide); NOVACRID, Green Guard</i>
CBAMFEW	<i>Community-based armyworm monitoring, forecasting and early warning</i>	ha	<i>hectare (= 10,000 sq. meters, about 2.471 acres)</i>
CCA	<i>Caucasus and Central Asia</i>	ICAPC	<i>IGAD's Climate Prediction and Application Center</i>
CERF	<i>Central Emergency Response Fund</i>	IGAD	<i>Intergovernmental Authority on Development (Horn of Africa)</i>
CIT	<i>Calliptamus italicus (Italian Locust)</i>	IRIN	<i>Integrated Regional Information Networks</i>
CLCPRO	<i>Commission de Lutte Contre le Criquett Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)</i>	IRLCO-CSA	<i>International Red Locust Control Organization for Central and Southern Africa</i>
CNLA(A)	<i>Centre National de Lutte Antiacridienne (National Locust Control Center)</i>	ITCZ	<i>Inter-Tropical Convergence Zone</i>
COR	<i>Central SGR Outbreak Region</i>	ITF	<i>Inter-Tropical Convergence Front = ITCZ)</i>
CPD	<i>Crop Protection Division</i>	FAO-DLIS	<i>Food and Agriculture Organizations' Desert Locust Information Service</i>
CRC	<i>Commission for Controlling Desert Locust in the Central Region</i>	Hoppers	<i>young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)</i>
CTE	<i>Chortoicetes terminifera (Australian plague locust)</i>	JTWC	<i>Joint Typhoon Warning Center</i>
DDLC	<i>Department of Desert Locust Control</i>	Kg	<i>Kilogram (~2.2 pound)</i>
DLCO-EA	<i>Desert Locust Control Organization for Eastern Africa</i>	L	<i>Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)</i>
DLMCC	<i>Desert Locust Monitoring and Control Center, Yemen</i>	LCC	<i>Locust Control Center, Oman</i>
DMA	<i>Dociostaurus maroccanus (Moroccan Locust)</i>	LPA	<i>Locustana pardalina</i>
DPPQS	<i>Department of Plant Protection and Quarantine Services, India</i>	LMC/ML	<i>Locusta migratoriacapito (Malagasy locust)</i>
DPV	<i>Département Protection des Végétaux (Department of Plant Protection)</i>	Metrihizium acridum	<i>(a fungal entomopathogen used for locust and grasshopper control, e.g., NOVACRID (Benin isolate; Green Muscle (Niger and CIRO isolates); The entomopathogen was formerly named <i>M. anisopliae</i> var <i>acridum</i> and before that it was referred to as <i>M. flavoveridea</i> and <i>Metarhizium</i> sp.)</i>
ELO	<i>EMPRES Liaison Officers –</i>	MoAFSC	<i>Ministry of Agriculture, Food Security and Cooperatives</i>
EMPRES	<i>Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases</i>		
EOR	<i>Eastern SGR Outbreak Region</i>		
ETOP	<i>Emergency Transboundary Outbreak Pests</i>		
FAW	<i>Spodoptera frugiperda (SFR) (Fall armyworm (FAW)</i>		

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.: [Curculionidae](#) – 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 Transfer of donated pesticides from countries with large inventories with no immediate

need for use to countries with immediate need through a third party 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, has emerged as a relatively new, dry season pest, largely associated with the destruction of its natural habitat from deforestation, land clearing for agricultural and other development efforts and climate anomalies.

Point of Contact:

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To learn more about our activities and programs, and/or download archived GETOP Bulletins, please, visit our website: [USAID/BHA PPM](#)

Additional resources on GETOPs

USAID/BHA Pest and Pesticide Monitoring and GETOP Bulletins: [USAID/BHA PPM](#)

USAID Pest Management Guidelines

[USAID PMG](#)

US EPA IPM

SGR:

The Desert Locust Control Organization for Eastern Africa [DLCO-EA](#)

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](#)

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](#)