

Emergency Transboundary Outbreak Pest (ETOP) Situation Bulletin for November 2020 with a forecast through mid-January
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹): SGR continued further developing and spreading in the central outbreak region (COR) where numerous swarms and hoppers continued forming in east Ethiopia, central and southern Somalia, and breeding continued in Sudan, central, northern and eastern parts of Eritrea including the Red Sea region as well as in Saudi Arabia and Yemen during November. Mature and immature swarms were migrating from western and central Somalia to eastern Ethiopia; from southern Somalia to northeastern Kenya, some reaching coastal areas. Conditions have also improved on the Red Sea coast in Yemen and Saudi Arabia. Control operations treated 85,380 ha in Ethiopia, 66,488 ha in Sudan, 30,328 ha in Somalia, 8,988 ha in Eritrea, 167 in Kenya, 5,190 ha in Saudi Arabia, 335 ha and in Yemen. In the western outbreak region (WOR), control operations treated 1,398 ha in Niger, 258 ha in Mauritania and 167 ha in Algeria during the reporting month. The situation remained generally calm in the eastern outbreak region (EOR) where only 79 ha were controlled in Iran.

<http://www.fao.org/ag/locusts/en/info/info/index.html>

Forecast: In COR, immature swarms will start to form and increase from December into January. From mid-December successive waves of immature swarms are expected to migrate south to southeastern Ethiopia and southern Somalia and invade northeast Kenya, spreading to northern and central counties. In EOR, swarms that arrived from the Arabian Peninsula will likely mature and breed during the forecast period in the areas of recent rainfall. In WOR, small-scale breeding may occur in northwest Mauritania, northern Niger and southern Algeria, but the rest of the region will likely remain calm during the forecast period. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): Significant NSE adult populations expected in Rukwa plains, Malagarasi Basin, Ikuu Katavi and Wembere plains in Tanzania, swarms from October 2020 in Malwi and substantial number of parental populations were likely in Buzi Gorongosa, and Dimba plains in Mozambique and in the Kafue Flats in Zambia.

African Migratory Locust: *Locusta migratoria migratorioides* (**LMI**): LMI has been reported in Angola, Botswana, Namibia, Zambia and Zimbabwe.

Tree Locusts, *Anacridium spp.* (**ASP**): ASP report was not received during this month.

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

Central American Locust, *Schistocerca piceiferons* (CAL): CAL was reported in Central American countries.

South American Locust, *Schistocerca cancellata* (SCA): SCA activities were reported in some South American countries.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): DMA, CIT and LMI activities have ended and will remain calm till next spring.

Fall Armyworm (*Spodoptera frugiperda*) (FAW): FAW was reported in Arumeru Region in Tanzania and a similar situation is likely in other countries where maize is in season and irrigation is in progress.

African Armyworm (AAW) (*Spodoptera exempta*): AAW outbreak was not reported during this month.

Quelea spp. (QSP): QSP outbreaks were reported in Ethiopia and Tanzania.

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

USAID/OFDA/PSPM regularly monitors ETOPs in close collaboration with its network of national PPDs/DPVs, regional and international pest monitoring and/or control entities, including FAO, CLCPRO, CRC, DLCO-EA, and IRLCO-CSA, and research centers, academia, private sector, NGOs and others and issues concise, analytical Bulletins to stakeholders. **End summary**

RÉSUMÉ

La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR): La SGR a continué à se développer et à se propager dans la région centrale de l'épidémie (COR) où de nombreux essaims et larves ont continué à se former dans l'est de l'Éthiopie, le centre et le sud de la Somalie, et la reproduction s'est poursuivie au Soudan, dans les parties centrale, nord et orientale de l'Érythrée, y compris la région de la mer Rouge. ainsi qu'en Arabie saoudite et au Yémen en novembre. Des essaims matures et immatures migraient de l'ouest et du centre de la Somalie vers l'est de l'Éthiopie; du sud de la Somalie au nord-est du Kenya, certains atteignant les zones côtières. Les conditions se sont également améliorées sur la côte de la mer Rouge au Yémen et en Arabie saoudite. Les opérations de lutte ont traité 85 380 ha en Éthiopie, 66 488 ha au Soudan, 30 328 ha en Somalie, 8 988

ha en Érythrée, 167 au Kenya, 5 190 ha en Arabie saoudite, 335 ha et au Yémen. Dans la région ouest du foyer (WOR), les opérations de lutte ont traité 1 398 ha au Niger, 258 ha en Mauritanie et 167 ha en Algérie au cours du mois de référence. La situation est restée généralement calme dans la région orientale du foyer (EOR) où seuls 79 ha étaient contrôlés en Iran.

<http://www.fao.org/ag/locusts/en/info/info/index.html>

Prévisions: Au COR, des essaims immatures commenceront à se former et à augmenter de décembre à janvier. À partir de la mi-décembre, des vagues successives d'essaims immatures devraient migrer vers le sud vers le sud-est de l'Éthiopie et le sud de la Somalie et envahir le nord-est du Kenya, se propageant aux comtés du nord et du centre. Dans l'EOR, les essaims arrivés de la péninsule arabique arriveront probablement à maturité et se reproduiront pendant la période de prévision dans les zones de pluies récentes. Dans le WOR, une reproduction à petite échelle peut avoir lieu dans le nord-ouest de la Mauritanie, le nord du Niger et le sud de l'Algérie, mais le reste de la région restera probablement calme pendant la période de prévision. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Criquet nomade (*Nomadacris septemfasciata*) (NSE): Des populations d'adultes importantes de NSE attendues dans les plaines de Rukwa, le bassin de Malagarasi, les plaines d'Ikuu Katavi et de Wembere en Tanzanie, des essaims à partir d'octobre 2020 à Malwi et un nombre important de populations parentales étaient probables à Buzi Gorongosa et dans les plaines de Dimba au Mozambique et dans les plaines de Kafue en Zambie .

Criquet migrateur africain: *Locusta migratoria migratorioides* (LMI): LMI a été signalée en Angola, au Botswana, en Namibie, en Zambie et au Zimbabwe

Le criquet arborial, *Anacridium spp*: (ASP): Le rapport ASP n'a pas été reçu ce mois-ci.

Criquet Amérique centrale, *Schistocerca piceifrons piceiferons* (CAL): CAL a été signalée dans les pays d'Amérique centrale.

Criquet d'Amérique du Sud, *Schistocerca cancellata* (SCA): Des activités de SCA ont été signalées dans certains pays d'Amérique du Sud.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): Les activités DMA, CIT et LMI sont terminées et le resteront jusqu'au printemps prochain.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*) (FAW): La FAW a été signalée dans la région d'Arumeru en Tanzanie et une situation similaire est probable dans d'autres pays où le maïs est en saison et l'irrigation est en cours.

Chenille Légionnaire africaine (AAW), *Spodoptera exempta*: aucune épidémie d'AAW n'a été signalée ce mois-ci.

Quelea spp. oiseaux (QSP): Des foyers de QSP ont été signalés en Éthiopie et en Tanzanie.

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 / OFDA / 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, 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. 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 on ETOPs can be found on the last pages of this Bulletin.

Weather and Ecological Conditions

During the last week of November rainfall was above-average over pocket areas in southern Ethiopia, western and southern Kenya, Uganda and Tanzania, while rainfall totals remained below-average over parts of eastern Kenya and southern Somalia. In East Africa, ecological conditions remained favorable along the Nile Valley from Atbara River to the Red Sea Hills. Light rains fell during the 1st dekad in northeast Sudan and near

Mecca, Saudi Arabia and light to moderate rains fell along the coast from Tokar Delta, Sudan to Foro, Eritrea and from Lith, Saudi Arabia to Suq Abs, Yemen with the heaviest showers near Qunfi dah during the 3rd dekad. Breeding conditions were also favorable in coastal areas from southeast Egypt to central Eritrea as well as on the Tihama northern Yemen. Strong southerly winds were reported occurred over the Arabian Peninsula from Yemen to Kuwait by mid-November. Early in the month prevailing northeasterly winds established over the Horn of Africa from northern Somalia to Kenya. After mid-month seasonal winds reached northeast Tanzania. During the 1st and 3rd dkads, light to moderate rain fell in the Somali region of eastern Ethiopia and in parts of northern Kenya while heavier rains fell in southern Somalia and eastern Kenya causing breeding conditions improve over vast

area in eastern Ethiopia, central and southern Somalia, and along both sides of the Kenya–Somalia border, extending 100 km inside Kenya. Cyclone Gati made a landfall on 22nd November near Xaafuun and the northern tip of northeast Somalia with sustained wind of 165 km/h. Very heavy rain accompanied Gati (e.g., 128 mm in 24 hours in Bossaso) and extensive damage was reported in Bari region. The cyclone crossed northeast Somalia to the Gulf of Aden near Lasqoray on the 23rd. Heavy rains extended along the north coast and inland on the plateau east of Burco to Iskushuban (FAO-DLIS, DLMCC/Yemen, LLC/Oman, DPV/Djibouti, PPD/Eritrea, PPD/Ethiopia, PPD/Sudan, NOAA).

In EOR, light to moderate rains fell on the coastal and subcoastal areas in southwest Iran during the 2nd and 3rd dekads, and ecological conditions will likely improve for locusts to survive and breed. Elsewhere generally dry conditions prevailed throughout the spring breeding areas.

In WOR, no significant rainfall was recorded during November in WOR and ecological conditions were only favorable in a few places in western Mauritania, southern Morocco, northern Niger, in irrigated areas in Algeria, and a few places near Fada in Chad (ANLA/Chad, CNLAA/Mauritania, CNLAA/Morocco, FAO-DLIS).

Seasonal rains that started in October/ November in most NSE outbreak regions in Malawi, Mozambique, Tanzania and Zambia continued improving conditions for locust breeding. The rains were heavy in Tanzania and moderate to lighter in Mali and Mozambique. Rainfall was below-average over central and southern

Tanzania. In Southern Africa, another week of heavy rains (75-300 mm; 50-200 mm above the mean) sustained moisture surpluses in western Zambia and eastern Botswana. Above-average rainfall was observed over much of Angola, while below average rains (-10-25 mm) fell over much of Namibia, western Botswana, eastern South Africa, eastern Zambia and Mozambique. Rainfall was also below-average over much of Madagascar. The 1st and 2nd weeks of December, a moderate to high chance for rainfall to exceed 50 mm across portions of Gabon, southern Congo, southern and eastern DRC, Rwanda, Burundi, western Kenya, portions of Angola, much of Zambia, Zimbabwe, central Mozambique, pocket areas in South Africa, and many parts of Madagascar (NOAA, IRLCO-CSA).

CAC Region: In CAC, mostly dry weather prevailed during this month.

ETOP proliferation vis-a-vis climate factors

Note: *Changes in the weather pattern such as increased or decreased temperatures and precipitation can contribute to an ecological shift in ETOP habitats and could increase or decrease the risk of pest outbreaks, resurgence and/or emergence of new pests. The extended ETOP appearance, prevalence, outbreaks and upsurges are partially attributed to the change in the weather pattern, i.e., extensive and above normal rainfall partly associated with the occurrence of multiple cyclones over a period of less than two years – May 2018 to December 2019 in the COR region.*

http://www.cpc.ncep.noaa.gov/products/international/casia/casia_hazard.pdf

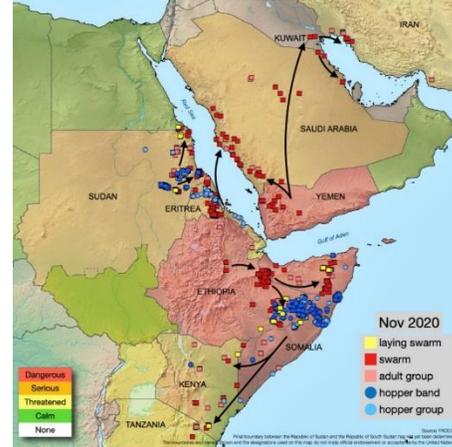
End note.

Detailed Accounts of ETOP Situation and a Forecast for the Next Six Weeks are provided below

SGR – COR: The **Desert Locust** (*Schistoseca gregaria* - **SGR²**): Substantial breeding caused hopper and band formations and immature and mature swarms persisted over vast areas in eastern Ethiopia and central Somalia where ground and aerial control operations continued throughout November. Hopper bands are present in the northwest Kenya from local breeding continued along the Red Sea coasts in Egypt, Sudan, Eritrea, Saudi Arabia and Yemen causing locust numbers to increase. Egg laying was observed in northeast Sudan. A few mature swarms from Somalia continued to arrive in northeastern Kenya and some reached coastal areas near Lamu Island. Egg-laying has already occurred near the Tana River and is likely to take place elsewhere. During this month, close to 195,000 ha were treated in the COR (85,380 in Ethiopia, 66,899 in Sudan, 30,328 in Somalia, 6,988 in Eritrea and 5,190 in KSA, 335 ha in Yemen and 167 ha in Kenya (FAO, PPD/Eritrea, PPD/Ethiopia, PPD/Sudan).

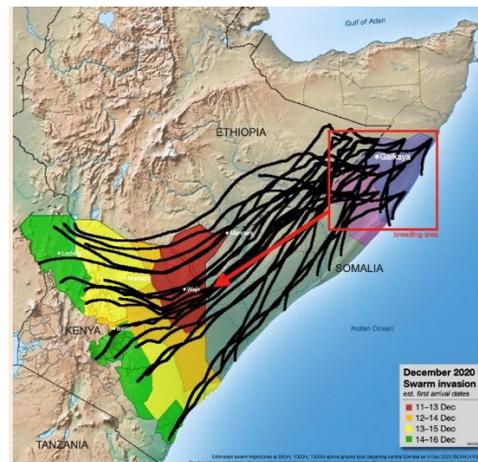
Forecast: In COR, immature swarms will start to form this week and increase from December and into January. From mid-December onwards, successive waves of immature swarms are expected to migrate south to southeastern Ethiopia and southern Somalia and invade northeast Kenya, spreading to northern and central counties. A few swarms that persisted in northeast Somalia are expected to lay eggs in areas that received rains from cyclone Gati, and

likely cause hatching and band formation before the end of December.



FAO-DLIS Dec 3, 2020

Intensive survey and control operations should remain critical in Ethiopia and Somalia with extreme vigilance and preparedness implemented in Kenya to fend off potentially massive invasions from Somali and likely Ethiopia (DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Eritrea, PPD/Ethiopia, PPD/Sudan, SPPV/Djibouti).



FAO-DLIS Dec, 2020

SGR - EOR: The SGR situation in southwest Asia remained largely calm and only a few immature swarms that arrived from the Arabian Peninsula

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

appeared on the southwest coast of Iran during the last week of November and control operations treated 79 ha during this month (FAO-DLIS).

Forecast: In EOR, swarms that arrived from the Arabian Peninsula will likely mature and breed in the areas of recent rainfall during the forecast period (FAO-DLIS).

SGR – WOR: Locusts have formed groups in western Mauritania, northern Niger, and southern Algeria where limited control was carried out (1,398 ha in Niger, 258 ha in Mauritania and 167 in Algeria). No locusts were reported in Morocco, Chad, or Tunisia during this month (ANLA/Chad, CNLAA/Mauritania, CNLAA/Morocco, CNLCP/Mali, CNLA/Tunisia, FAO-DLIS).

Forecast: In WOR, small-scale breeding may occur in northwest Mauritania, northern Niger and southern Algeria, but the rest of the region will likely remain calm during the forecast period.

Active surveillance, monitoring, preparedness and timely preventive and curative interventions are critical to avert any significant locust developments and the potential threat they pose to food security and livelihoods of vulnerable communities (FAO-DLIS, OFDA/PSPM).

Red (Nomadic) Locust (NSE): NSE swarms that were reported in October 2020 in Lake Chilwa plains, Malawi persisted. Significant populations of adult locusts were also expected in Rukwa plains, Malagarasi Basin, Ikuu Katavi and Wembere plains in Tanzania and substantial number of parental populations were likely in Buzi Gorongosa, and Dimba plains in Mozambique and in the Kafue Flats in

Zambia. Good rains that fell during this season improved breeding conditions in NSE outbreak areas (IRLCO-CSA).

Forecast: NSE eggs are expected to hatch in January and start forming hopper bands in the outbreak areas. Medium to large size hopper bands are likely to form where significant residual parental populations were present before the onset of the rains. Fledging is likely around March/April and form swarms which if left uncontrolled will invade adjacent farmland and migrate to neighboring countries. IRLCO-CSA in collaboration with MinAgris will have to launch survey and undertake control operations more so in areas where high density hopper bands are detected (BHA/TPQ, IRLCO-CSA).

African Migratory Locust (LMI): LMI persisted in Kazungula, Mwandu, Sesheke and Nalolo districts in Southern and Western Provinces of Zambia. IRLCO and MoA/Zambia launched aerial and ground control operations against swarms and hoppers and treated 4,853 ha using of Sumicombi Alpha and Malathion 92.5ULV

Forecast: It is likely that residual populations will successfully breed and give another generation of hoppers in December 2020 and January 2021 in areas where ecological conditions have improved from the seasonal rains. Timely surveillance, monitoring and preventive interventions remain critical to minimize the threats the pest causes to crops and pasture (IRLCO-CSA, BHA/TPQ).

Note: FAO Southern Africa developed an action plan for the AML operations in the region. The Action Plan has since been revised and updated by SADC and

increased the appeal to USD 21 million. The updated appeal will include coordination, response, preparedness, food security and livelihoods of millions of affected people in targeted countries in the southern Africa region. FAO is working in close contact with SADC, MoAs, IRLCO-CSA, donors and other stakeholders to help address the AML threat (FAO/Southern Africa).

Central American Locust - *Schistocerca piceifrons* (CAL): No update was received at the time this bulletin was compiled. [Note: CAL is a pest of economic importance in Mexico and Central America and feeds on hundreds of species of plants including agave, banana, beans, corn, cotton, peanut, rice, sesame, soybean, sorghum, sugarcane, several fruit trees, etc.]

South American Locust, *Schistocerca cancellata* (SAL) – Flying lobster: No update was received at the time this bulletin was compiled, but it is likely the pest persisted during the month. <https://www.voanews.com/americas/argentina-battles-locust-plague-northern-province>.

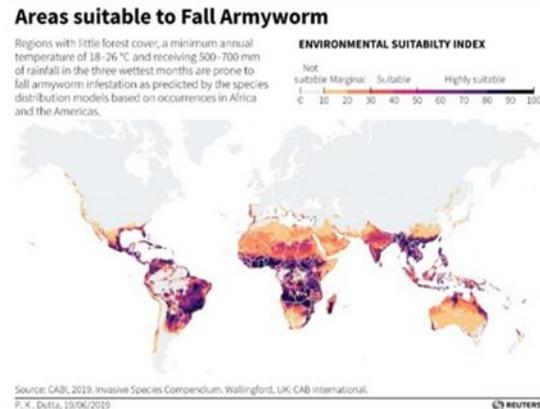
Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): Locust activities have ended in the region and no additional activities are expected till next spring (BHA/TPQ/P&PM) <http://www.fao.org/locusts-cca/en/>

Fall armyworm (FAW): Infestations were reported in maize fields in Arumeru Region in Tanzania. It is expected that the pest was present in irrigated and in-season maize and other cereal crops in invasion and outbreak countries and regions (BHA/TPQ, DLCO, PHS/Tanzania).

Forecast: FAW is expected to continue affecting rain-fed and irrigated maize and

other cereal crops across sub-Saharan Africa, Asia, the Pacific Regions and elsewhere during the forecast period (BHA/TPQ).

Active monitoring, surveillance, reporting and preventive and curative actions remain critical to abate significant crop damage (BHA/TPQ).



Events on FAW: The Food and Agriculture Organization of the United Nations (FAO) proposed a bold, transformative and coordinated Global Action for Fall Armyworm Control (GAFC). A total budget of USD 500 million is needed to implement the GAFC in 65 target countries in Africa, Near East and Asia-Pacific, from 2020 to 2022. This equates to an estimated USD 450 million for the Global Action and USD 50 million for global coordination.

The first meeting of the Technical Committee of the GAFC was conducted on **May 18, 2020**. The GAFC is a pioneering initiative that aims to mobilize USD 500 million over the period 2020–2022 to take radical, direct and coordinated measures to fight FAW at a global level. The 3 key objectives of the GAFC are to:

- Establish a global coordination and regional collaboration on monitoring,

early warning, and intelligent pest management of FAW;

- Reduce crop losses caused by FAW and
- Reduce the risk of further spread of FAW to new areas (Europe and South Pacific).

Key Activity update: BHA/TPQ/FSL is working on innovative intervention projects to benefit large numbers of small-scale farming communities in affected countries with the intention to scale-up cross different FAW prone regions. This initiative will build on experiences gained over the past several years, including OFDA (BHA) and RFS sponsored initiatives.

Note: Several species of FAW natural enemies have been identified in Ethiopia, Kenya, Tanzania, Madagascar, India, etc. and are being further studied to determine their efficacy, environmental impacts and safety. **End note.**

African Armyworm (AAW): AAW outbreaks were not reported during this month (BHA/TPQ, DLCO-EA).

Forecast: AAW activities may appear in in the seasonal outbreak regions in southcentral Africa at the foot hill of the rains (BHA/TPQ).

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

Strong surveillance, monitoring and quarantine enforcement remain critical to prevent invasive pest species.

Quelea sp. (QSP): QSP infestations were reported in sorghum fields in seven

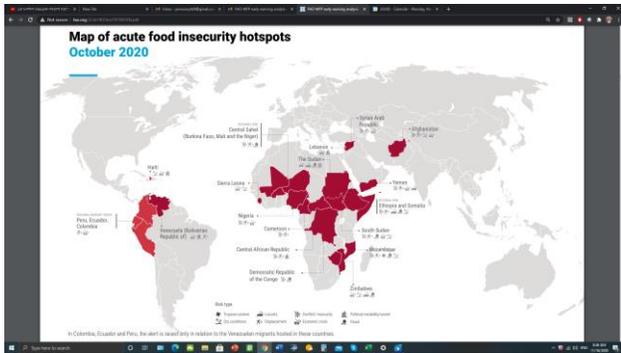
villages in two zones in the Amhara Administrative region in Ethiopia. The pest was also reported in rice fields in Arusha (Meru District), Kilimanjaro (Moshi District), Tanga (Korogwe District), Manyara (Simanjiro District) and Coast (Kibaha District) in Tanzania. QSP populations was report on Kingdom Rice farm in Bulambuli district in the northeastern part of the country where the pest was observed causing damage to rice fields; surveillance and monitoring continued to assess control interventions.

Forecast: QSP will likely continue being a threat to small grain cereal crops in several countries (BHA/TPQ).

Facts: QSP birds 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 to 10,000 kg of seeds/day, enough to feed 12,000-20,000 people/day (OFDA/AELGA).

Rodents: No update was received during this month, but it is likely that the pest continued being a problem to crops and produce (BHA/TPQ).

Acute food insecurity hotspots map (next column) shows several countries and regions that are exposed to and/or are highly vulnerable to locust invasions plus other stressors – eastern Africa and the Horn, the Arabian Peninsula (Yemen), southern Africa (Zimbabwe). Other countries that are not list on the map as hotspots, including Eritrea, Botswana, Zambia, Namibia, Angola, Malawi, Tanzania, and Mozambique are also exposed to serious locust threats (source FAO and WFP, October 2020).



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

All ETOP front-line countries must maintain regular monitoring and surveillance and launch control interventions as needed. 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, National DPVs and PPDs, ELOs, etc., are encouraged to continue sharing ETOP information with stakeholders as often as possible. Lead farmers, field scouts, community forecasters and others must remain vigilant and report ETOP detections to relevant authorities as quickly as possible.

OFDA's Contributions to ETOP Abatement Interventions

USAID/OFDA/PSPM is supporting an operational research through Arizona State University to develop a tool to manage the Senegalese grasshopper (OSE).

OSE is a notorious pest of cereal and vegetable crops as well as pasture and causes serious damage to small-holder farmers in its 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 small-holder farmers. USAID/BHA/TPQ continuously explores parties interested in developing and expanding innovative technologies to help minimize the impacts of ETOPs on food security and livelihoods of the most vulnerable peoples and communities across regions.

The online Pesticide Stock Management System (PSMS) that was developed by FAO with financial assistance from donors, including USAID/OFDA, that continued benefiting participating countries across the globe was halted due to security and server switch. FAO will be reinstating the system. Thanks to the system, SGR frontline countries and others had been able to effectively manage their strategic pesticide stocks and minimize/avoid accumulation of unusable pesticides and empty pesticide containers.

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

OFDA/PSPM promotes an IPM approach to minimize risks associated with pesticide poisoning, stockpiling, and environmental contamination. An informed procurement and judiciously executed triangulations of surplus stocks from countries with large inventories of usable products to countries where they are much needed is worth considering

Inventory of Strategic Pesticide Stocks for SGR Control

During November, a little under 200,000 ha were treated in all three SGR regions with the largest numbers of hectares treated in COR (85,380 in Ethiopia, 66,899 in Sudan, 30,328 in Somalia, 6,988 in Eritrea and 5,190 in KSA (FAO, PPD/Eritrea, PPD/Ethiopia, PPD/Sudan).

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

Country	Quantity, l/kg*
Algeria	1,186,034~
Chad	34,100
Egypt	10,253 ULV, 45,796
Eritrea	527~
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	9,953~
Saudi Arabia	23,379~
Senegal	156,000~
Somalia	~
Sudan	103,482
South Sudan	
Tunisia	62,200 obsolete
Uganda	

Yemen	35,000 ^D ; 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	
^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 = <i>Green Muscle</i> TM (fungal-based biological pesticide, e.g., NOVACRID)	

LIST OF ACRONYMS

AAW	African armyworm (<i>Spodoptera expempta</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)
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
CABI	Center for Agriculture and Biosciences International
CAC	Central Asia and the Caucasus

CBAMFEW	Community-based armyworm monitoring, forecasting and early warning	GM	GreenMuscle® (a fungal-based biopesticide); NOVACRID, Green Guard
CERF	Central Emergency Response Fund	ha	hectare (= 10,000 sq. meters, about 2.471 acres)
CIT	<i>Calliptamus italicus</i> (Italian Locust)	ICAPC	IGAD's Climate Prediction and Application Center
CLCPRO	Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)	IGAD	Intergovernmental Authority on Development (Horn of Africa)
CNLA(A)	Centre National de Lutte Antiacridienne (National Locust Control Center)	IRIN	Integrated Regional Information Networks
COR	Central SGR Outbreak Region	IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa
CPD	Crop Protection Division	ITCZ	Inter-Tropical Convergence Zone
CRC	Commission for Controlling Desert Locust in the Central Region	ITF	Inter-Tropical Convergence Front = ITCZ)
CTE	<i>Chortoicetes terminifera</i> (Australian plague locust)	FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service
DDLC	Department of Desert Locust Control	Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)
DLCO-EA	Desert Locust Control Organization for Eastern Africa	JTWC	Joint Typhoon Warning Center
DLMCC	Desert Locust Monitoring and Control Center, Yemen	Kg	Kilogram (~2.2 pound)
DMA	<i>Dociostaurus maroccanus</i> (Moroccan Locust)	L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
DPPQS	Department of Plant Protection and Quarantine Services, India	LCC	Locust Control Center, Oman
DPV	Département Protection des Végétaux (Department of Plant Protection)	LMC	<i>Locusta migratoriacapito</i> (Malagasy locust)
ELO	EMPRES Liaison Officers -	LMI	<i>Locusta migratoria migratorioides</i> (African Migratory Locust)
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases	LPA	<i>Locustana pardalina</i>
EOR	Eastern SGR Outbreak Region	MoAFSC	Ministry of Agriculture, Food Security and Cooperatives
ETOP	Emergency Transboundary Outbreak Pest	MoAI	Ministry of Agriculture and Irrigation
Fledgling	immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed	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	<i>Nomadacris septemfasciata</i> (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)

SARCOF Southern Africa Region Climate Outlook Forum

SCA *Schistocerca gregaria* (South American Locust)

SFR *Spodoptera frugiperda* (SFR) (Fall armyworm (FAW))

SGR *Schistocerca gregaria* (the Desert Locust)

SPI *Schistocerca piceifrons piceiferons* (Central American Locust)

SSD Republic of South Sudan

SPB Southern Pine Beetle (*Dendroctonus frontalis*) – true weevils

SWAC South West Asia DL Commission

PBB Pine Bark Beetle

PSPM Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)

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

Point of Contact:

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To learn more about our activities and programs, please, visit our website: <https://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how-we-do-it/humanitarian-sectors/agriculture-and-food-security/pest-and-pesticide-monitoring>

Additional resources on SGR and other ETOPs

SGR
USAID Pest Monitoring:
<https://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how-we-do-it/humanitarian-sectors/agriculture-and-food-security/pest-and-pesticide-monitoring>

Archived ETOP Bulletins:
<https://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how-we-do-it/humanitarian-sectors/agriculture-and->

[food-security/pest-and-pesticide-monitoring/archive](#)

UN/FAO Desert Locust Watch

<http://www.fao.org/ag/locusts/en/info/info/index.html>

FAO Locust Hub

<https://locust-hub-hqfao.hub.arcgis.com/>

FAO Locust Emergency Appeal for Greater Horn of Africa and Yemen

http://www.fao.org/fileadmin/user_upload/emergencies/docs/Greater%20Horn%20of%20Africa%20and%20Yemen%20%20Desert%20locust%20crisis%20appeal%20%20May%202020.pdf

<http://www.fao.org/emergencies/crisis/desertlocust/en/>

FAO visuals on SGR

<http://tv.fao.org/>

FAO Desert Locust Crisis

<http://www.fao.org/emergencies/crisis/desertlocust/en/>

<http://www.fao.org/ag/locusts/en/info/info/index.html>

CIT, DMA and LMI – FAO-PPPD

<http://www.fao.org/locusts-cca/en/>

DLCO-EA

<http://www.dlco-ea.org/final/index.php/about-us>

FAO/Central Region Locust Control Commission

<http://desertlocust-crc.org/Pages/index.aspx?CMSId=8&lang=EN>

FAO/Western Region Locust Control Commission

<http://www.fao.org/clcpro/fr/>

FAO Locust Watch - Central Asia and Caucasus

<http://www.fao.org/locusts-cca/en/>

IGAD Climate Predication and Application Centres

<https://www.icpac.net/news/desert-locust-projection-october-2020/>

USAID supports for locust operations in the CAC

Region: <http://www.fao.org/locusts-cca/programme-and-donors/projects-donors/en/>

FAO SGR Response Overview Dashboard

<http://www.fao.org/locusts/response-overview-dashboard/en/>

FAO Locust Hub

<https://locust-hub-hqfao.hub.arcgis.com/>
<http://www.fao.org/ag/locusts/en/activ/DLIS/eL3suite/index.html>

FAW

USAID FtF FAW

<https://www.agrilinks.org/post/fall-armyworm-africa-guide-integrated-pest-management>

FAW management animation SAWBO

<https://sawbo-animations.org/video.php?video=//www.youtube.com/embed/5rxlpXEK5q8>

<http://www.cabi.org/isc/datasheet/29810>

<http://www.fao.org/emergencies/resources/maps/detail/en/c/1110178/>

FAO NURU FAW Application

<http://www.fao.org/news/story/en/item/1141889/code/>

USAID FAW PEA/PERSUAP

<https://ecd.usaid.gov/repository/pdf/50065.pdf>

FAO FAW Monitoring and Early warning System

<http://www.fao.org/3/CA1089EN/ca1089en.pdf>

<https://acbio.org.za/sites/default/files/documents/BT%20Maize%20Fall%20Army%20Worm%20report.pdf>

<https://www.invasive-species.org/wp-content/uploads/sites/2/2019/03/Fall-Armyworm-Evidence-Note-September-2017.pdf>

AAW

<http://www.armyworm.org/latest-armyworm-forecast-irlco-csa-oct-2018/>

FEWS NET

<https://fews.net/>

NOAA CPC

<https://www.cpc.ncep.noaa.gov/products/international/itf/itcz.shtml>