

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

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹): SGR situation remained extremely alarming in the central outbreak region (COR) where massive swarms and hoppers and bands were formed and continued spreading throughout the greater Horn of Africa during February. Aerial and/or ground control operations continued in progress in **Ethiopia** and **Kenya** and to some extent in northern **Somalia** during this month. Mature adult locusts reached northern Tanzania, Uganda, and South Sudan and were detected in northeastern DRC on February 21st (the last time locusts were reported in DRC was 1944). New hoppers and swarm formations are in progress and posing even greater threats to food security and livelihoods of vulnerable communities and people in the Horn in the coming months. Survey and control operations continued in **Eritrea, Sudan, Saudi**

Arabia, Oman and **Yemen**. Dense immature swarms from Saudi Arabia and Yemen were carried by strong wind to Persian Gulf in February. Swarms reached **Kuwait, Bahrain, Qatar** and along the west coast of **Iran** between Bushehr and Kish Island on 20-21 February where control operations were launched. In the eastern outbreak region (EOR), breeding continued in southeastern **Iran** and control operations were carried out against residual populations in Rajasthan **India** and a few small swarms appeared in cropping areas in Punjab, Baluchistan and other adjacent areas in **Pakistan**. More swarms are likely to appear during the southerly winds. The western outbreak region (WOR) remained relatively calm during this month <http://www.fao.org/ag/locusts/en/info/info/index.html>.

Forecast: Breeding will continue and dramatically increase locust numbers in the Horn of Africa. Locust numbers will also increase along coastal areas in Eritrea, Sudan, the interior of the Arabian Peninsula, Iran and western Pakistan. Small-scale breeding is likely in the western outbreak region during the forecast period. FAO estimates some 20.2 million people are facing severe acute food insecurity (Integrated Food Security Phase Classification [IPC] Phases 3 and above) in the Greater Horn of Africa. With the main growing season coming up in the region, locusts threaten to push this figure even higher. Efforts must be made to prevent the current upsurge from reaching a plague stage. Host country governments in the region have been leading intensive surveillance and control operations but the needs are outpacing their efforts. If swarms remain unabated in the coming several weeks and months, we could see dramatic population increase by June, much worse than the situation over the past months. Timely preventive/curative

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

control must be supported with adequate resources to detect and abate locust populations as quickly as possible. Resources are also needed to protect the livelihoods of farmers and pastoralists and ensure they meet their immediate food needs and inputs to restore production. The Food and Agriculture Organization of the United Nations (FAO) has revised its Horn of Africa appeal taking into account emerging needs. For this, FAO urgently requested USD 138 million to support locust surveillance and control, safeguard livelihoods, and enhance coordination and preparedness in the Horn of Africa (UN/FAO). FAO also launched a proactive appeal for USD 15.8 to support Sudan and Yemen in the coming several months. It is advised that all frontline and invasion countries remain vigilant and intensify surveillance, monitoring and rapid and timely interventions. Development and humanitarian partners encouraged to remain generous in providing support to reduce the burden of the locust invasions on food security and livelihoods of vulnerable peoples and communities.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): No update was received on NSE, but it is likely breeding continued in the primary outbreak areas during February. Favorable conditions are likely to increase locust populations in Tanzania, Malawi, Mozambique and Zambia where good rains are in the forecast.

Tree Locusts, *Anacridium spp.* (**ASP**): No update was received, but given ecological conditions, but ASP likely persisted in Turkana and Marsabit countries in Kenya.

Central American Locust, *Schistocerca piceiferons* (**CAL**): No update was received at the time this bulletin was compiled.

South American Locust, *Schistocerca cancellata* (**SCA**): SCA outbreaks were reported in Argentina, Uruguay and neighboring areas South America during the past months.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): Locust activities will remain calm until spring.

Fall Armyworm (*Spodoptera frugiperda*) (**FAW**): FAW was reported in Timor Leste, Papua New Guinea, Australia and Indonesia. The pest continue affecting maize and other crops in several countries across continents.

African Armyworm (AAW) (*Spodoptera exempta*): AAW outbreaks were not reported in eastern Africa during this month.

Quelea spp. (QSP): QSP bird outbreaks were not reported during this month.

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 situation SGR est restée extrêmement grave dans la région centrale de l'épidémie (COR) où des essaims massifs, des larves et des bandes se sont formés et ont continué de se propager dans la grande Corne de l'Afrique en février. Les opérations de contrôle aérien et terrestre se sont poursuivies en Éthiopie et au Kenya et des opérations limitées de contrôle au sol ont été lancées dans le nord de la Somalie. Des criquets ont également atteint le nord de la Tanzanie, l'Ouganda, le Soudan du Sud et ont été détectés dans le nord-est de la RDC le 21 février (la dernière fois que des criquets ont été signalés en RDC en 1944!). Les opérations de prospection et de contrôle se sont poursuivies en Érythrée, au Soudan, en Arabie saoudite, à Oman et au Yémen. Pendant plusieurs jours de vents forts en février, des essaims immatures denses d'Arabie saoudite et du Yémen ont atteint les deux côtés du nord du golfe Persique et sont arrivés au Koweït, à Bahreïn, au Qatar et le long de la côte sud-ouest de l'Iran entre Bushehr et l'île de Kish les 20 et 21 février, où le contrôle les opérations ont été immédiatement lancées. Dans la région de l'épidémie orientale (EOR), la reproduction s'est poursuivie dans le sud-est de l'Iran. Des opérations de lutte ont également été menées contre les populations résiduelles du Rajasthan en Inde et quelques petits essaims sont apparus dans les zones de culture du Pendjab, du Baloutchistan et d'autres zones adjacentes du Pakistan. Plus d'essaims sont probables pendant les périodes de vents du sud. La région ouest de l'épidémie (WOR) est restée relativement calme au cours de ce mois <http://www.fao.org/aq/locusts/en/info/info/index.html>

Prévisions: La reproduction se poursuivra et augmentera considérablement les effectifs acridiens dans la Corne de l'Afrique. Les effectifs acridiens augmenteront également le long des zones côtières de l'Érythrée, du Soudan, de l'intérieur de la péninsule arabique, de l'Iran et de l'ouest du Pakistan. Une reproduction à petite échelle est probable dans la région ouest de l'épidémie au cours de la période de prévision. La FAO estime qu'environ 20,2 millions de personnes sont actuellement confrontées à une grave insécurité alimentaire aiguë dans la Grande Corne de

l'Afrique (phases 3 de la classification intégrée de la sécurité alimentaire [IPC] et plus). Avec la principale saison de croissance qui approche dans la région, les criquets menacent de pousser ce chiffre encore plus haut. Des efforts doivent être faits pour empêcher que la recrudescence actuelle n'atteigne un stade de peste. Les gouvernements des pays hôtes de la région mènent des opérations intensives de surveillance et de contrôle, mais les besoins dépassent leurs efforts. Si les essaims restent inchangés dans les semaines et les mois à venir, nous pourrions voir une augmentation spectaculaire de la population d'ici juin, bien pire que ce que nous avons vu au cours des derniers mois. Des interventions préventives / curatives en temps opportun et un soutien suffisant sont indispensables pour détecter et réduire rapidement les populations acridiennes afin d'éviter une nouvelle propagation. Des soutiens sont également nécessaires pour protéger les moyens de subsistance des agriculteurs et des éleveurs afin de garantir qu'ils disposent des ressources nécessaires pour répondre à leurs besoins alimentaires immédiats et d'intrants pour restaurer la production. L'Organisation des Nations Unies pour l'alimentation et l'agriculture (FAO) a révisé son attrait régional en tenant compte des besoins émergents. Pour cela, la FAO a demandé d'urgence 138 millions USD pour soutenir la surveillance et la lutte antiacridienne, sauvegarder les moyens de subsistance et améliorer la coordination et la préparation (ONU / FAO). La FAO lance un appel anticipé de 15,8 USD pour soutenir le Soudan et le Yémen au cours des prochains mois. Il est conseillé à tous les pays de rester vigilants et d'intensifier la surveillance, le suivi et les interventions rapides et opportunes pour réduire la charge des invasions acridiennes sur la sécurité alimentaire et les moyens de subsistance des communautés vulnérables.

Criquet nomade (*Nomadacris septemfasciata*) (NSE): NSE a poursuivi sa reproduction dans les principales zones du foyer en janvier. Des conditions favorables devraient augmenter les populations acridiennes en Tanzanie, au Malawi, au Mozambique et en Zambie au cours de la période de prévision.

Le criquet arborial, *Anacridium spp*: Aucune mise à jour n'a été reçue, mais compte tenu des conditions écologiques, mais l'ASP a probablement persisté dans les comtés de Turkana et Marsabit au Kenya.

Criquet Amérique centrale, *Schistocerca piceifrons piceiferons* (CAL): Aucune mise à jour n'a été reçue à la date de rédaction du présent bulletin.

Criquet d'Amérique du Sud, *Schistocerca cancellata* (SCA): SCA ont été signalés en Argentine, en Uruguay et dans les régions voisines d'Amérique du Sud au cours des derniers mois.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): les activités acridiennes étaient terminées à CAC et la région restera calme jusqu'au printemps prochain.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*) (FAW): (FAW): La FAW a été signalée au Timor-Leste, en Papouasie-Nouvelle-Guinée, en Australie et en Indonésie. Le ravageur continue d'affecter le maïs et d'autres cultures dans plusieurs pays à travers les continents

Chenille Légionnaire africaine (AAW), *Spodoptera exempta*: Aucune flambée d'AAW n'a été signalée en Afrique de l'Est au cours de ce mois.

***Quelea* spp. oiseaux (QSP):** Aucune éclosion d'oiseaux QSP n'a été signalée au cours de ce mois.

La surveillance active, le suivi et les interventions préventives et curatives opportunes ainsi que le partage des informations 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 ones can be accessed and downloaded on USAID Pest and Pesticide Monitoring website: [USAID Pest and Pesticide Monitoring](#)

Weather and Ecological Conditions

In **COR**, ecological conditions remained favorable in northeastern Somalia, eastern and southwestern Ethiopia as well as northern and central Kenya where locust swarms were reported. During the past 30 days, rainfall totals exceeded 300 mm over local areas in southwestern Ethiopia, Uganda, southern Kenya, and Tanzania. Light rain was reported in some areas between Suq Abs and Bait Al Faqih in Yemen during the 2nd and last dekads of February (DLMCC/Yemen, FAO-DLIS, NOAA 2/2020).

In **EOR**, rainfall was reported in southwest Iran and Punjab, Pakistan during the last dekad of February. Breeding conditions were favorable along the southern coast of Iran and the southeastern interior. Conditions improved in coastal and interior of Baluchistan in southwest Pakistan. Dry conditions persisted along the Indo-Pakistan borders (FAO-DLIS).

In **WOR**, light showers were reported in central and southern Algeria and ecological conditions remained dry in most of the regions expect a few places in Draa Valley south of the Atlas Mountains in Morocco and in southwest Libya and northern Mali where conditions were favorable for locusts to survive (ANLA/Chad, CNLA/Mauritania,

CNLAA/Morocco, CNLA/Tunisia, CNLAP/Mali, FAO-DLIS).

In **NSE** outbreak regions, rainfall totals exceeded 300 mm in central and southern Tanzania, central Zambia, northern Malawi and in northeastern Mozambique. Rainfall was above-average over many parts of Uganda, southern Kenya, Tanzania, many parts of Zambia, Malawi, and portions of Mozambique. Rainfall surpluses exceeded 200 mm over parts of southern Tanzania during the past 30 days. There is an increased chance for above-average rainfall in Tanzania, northeastern Zambia, northern Malawi, and Kenya from 10-16 March (IRLCO-CSA, NOAA, 2/2020)

CAC Region: Cold and dry weather is expected to have prevailed in CAC during this month.

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 ongoing SGR extended outbreaks and upsurges are also partially attributed to the change in the weather pattern – extended and above normal rainfall partly associated with 4-5 cycles that made landfall in the COR region, extending from Oman, Yemen, Southern Arabian Sea and the Horn of Africa between May 2018 to December 2019.

In Uzbekistan, Moroccan locust (DMA) which is normally a low to medium altitude pest has shown a considerable vertical habitat expansion by up to 1,000 feet or 300 meters from its regular

ambient altitude due to warmer higher elevations.

The **Asian migratory locust**, an insect that normally has one generation per year, has begun breeding twice a year. This phenomenon is largely attributed to change in weather pattern resulting in ecological shift and can become serious concerns to farmers, rangeland managers, crop protection experts, development and humanitarian partners, etc. Regular monitoring, documenting and reporting anomalies in pest behavior and on habitat shifts are crucial to help avoid/minimize potential damage to crops, pasture and reduce negative impacts on food security and livelihoods of vulnerable populations and communities.

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 SGR situation remained extremely worrisome in **Ethiopia, Kenya** and **Somalia** as the pest continued further developing and spreading and threatening crops and pasture. Several swarms have been reported in southeastern and southern **Ethiopia** and southwestern **Somalia** and northern and central **Kenya**.

In **Ethiopia**, locusts have been detected in more than 172/800 Woredas (Districts) in Afar, Amhara, Oromia, Somali, SNNPR and Tigray administrative regions. These numbers could likely increase to 300 in the coming months unless rapid interventions are launched. An estimated 17.8 million people will likely be impacted; some 8.5 million people with projected IPC Phase 3 (Crisis) and IPC

Phase 4 (Emergency) food insecurity between February and June 2020 of which more than 6 million are in locust-affected areas in Afar, Oromia and Somali Regions where the pest caused the most damage in pastoral areas. It is to be recalled that during 2019, SGR caused severe damage to immature crops in northeastern Amhara and Tigray regions. Ground and aerial control operations are in progress in **Ethiopia** and more than 41,000 ha were treated during February (close to 160,000 ha have been treated since the start of control operations in June of 2019). Thanks to USAID/OFDA funds close to 20 swarms were reported controlled in February in Somali administrative region in Ethiopia. Surveillance and monitoring activities supported through this and other funds contributed to additional control operations (FAO). MoA/Ethiopia has established two operational hubs in Arabamich (SNNPR) and Bale (Oromia); three aircraft have been dispatched and 100,000 liter of pesticides procured and delivered to the operational hubs. FAO intends to lease two additional planes and provide knapsack sprayers, pickup trucks, vehicle-mounted sprayers, PPE and surveillance equipment and additional pesticides (FAO).

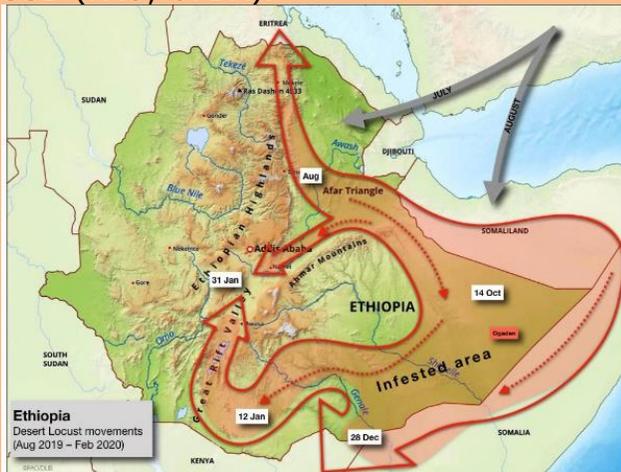
In **Kenya**, 173,000 acres have been reported affected in 21 of the 47 counties; an estimated 1 million food insecure people are in locust affected counties, including Garissa, Mandera, Marsabit, Turkana and Wajir. Hoppers have been reported in Isiolo Central Kenya and in northern Kenya and swarms continue moving back and forth between countries. Ground and aerial control operations were intensified since January 6th and treated more than 15,000 ha during February.

In **Somalia**, late instar hopper bands and immature adult groups are forming between Berbera and Burao in the northwest. In the northeast, new immature swarms are forming near Garowe. Some swarms may be moving south towards NE **Kenya**. Ground control treated 1,050 ha during this month. In Somalia, 1.15 M people are estimated to face IPC 3 and 4 between January and March 2020 of which more than 250,000 are in locust affected areas in central and southern Somalia (in Bakool, Bay, Gedo, Galgaduud, Hirar and Mudug) where above average rainfall was recorded between October-December 2019 (Cyclone Pawan made a landfall on 6th December in southern Somalia). There is a serious threat that these people will be still exposed to more locusts and food insecurity during the coming months due to locust invasions. In **Djibouti**, vegetation remained green, but survey operations were not conducted and swarms were not reported during February (PPD/Djibouti).

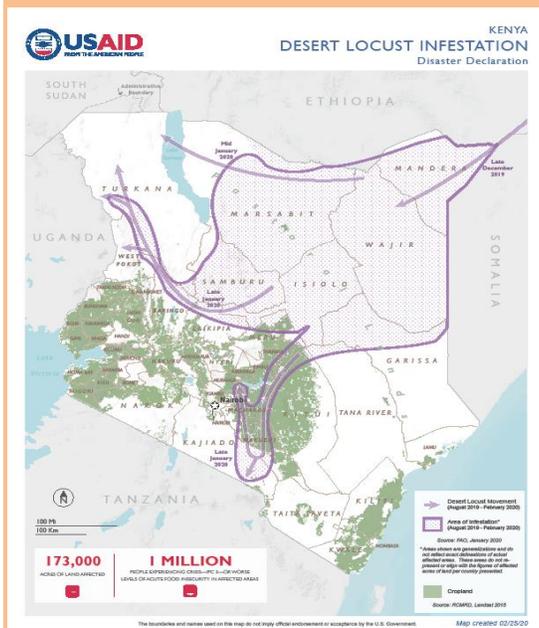
In **Uganda** swarms from northwestern **Kenya** arrived in northeastern part of the country where ground control was launched by the army. Additional locusts were not reported since 24 February.

In **South Sudan (SSD)**, a mature swarm from northern **Uganda** arrived in Loboni and southeastern part of the country on February 17 and later flew back to Uganda. On February 23 another mature swarm arrived in Magwi southeastern part of the country, and dispersed into small swarms; conditions were not favorable and breeding did not occur. Survey and monitoring are in progress to determine locust presence and infestation. Training was conducted by FAO-DLCO-EA in Torit and Kapoita from February 24 to March 5. So far, control operations were not necessitated in SSD,

but freshly trained PPD, NGO etc., staff is ready to engage (FAO-DLCO). According to the UN/FAO, an appeal for \$10 million was issued for SSD for the response, including \$5 million for control and preparedness activities and \$5 million for livelihoods support. As of February 27, FAO confirmed that the Bill and Melinda Gates Foundation has provided \$1 million and the FAO regional office contributed \$500,000 towards response efforts in SSD (FAO, OFDA).



FAO-DLIS, 1/2020



In **Sudan**, survey and control operations continued along the Red Sea coasts

where maturing swarms and hoppers were controlled during February. Mature and immature adults were also detected on the northeastern and south eastern coasts and the Tokar Delta and some 5,050 ha were treated during this month.

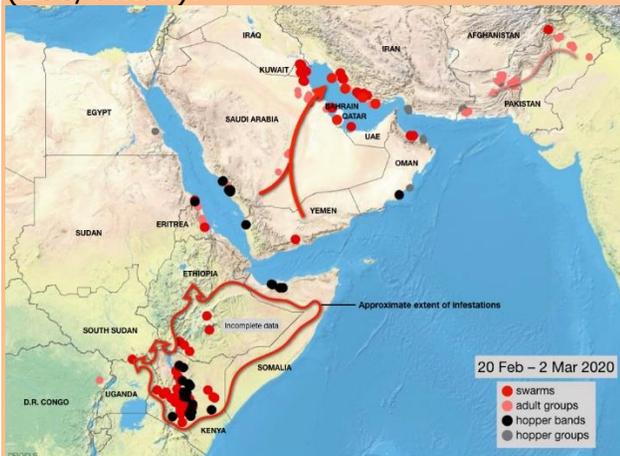
In **Eritrea**, breeding continued on the central and northern Red Sea coast where groups of hoppers and immature adults formed. A mature swarm appeared on the coast near Massawa and laid eggs. Ground control operations continued (12,153 ha were reported treated during February. No crop/pasture damage was reported.

In **Yemen**, SGR situation continued to serious and threatening crops, where several immature and mature swarms were forming in the interior and highlands areas between Sana'a and West Hadhramuot and adults groups were seen copulating and laying eggs West Suq Abs during the 2nd dekad of February and 1st and 2nd instar hopper bands were reported on northern part of Tehama north Al Zuhra district and on Gulf of Aden coastal plain Plaines East Am Rijaa during the last dekad of the month. Limited survey and control operations were carried out on northern and central parts of Tehama between Suq Abs and Al Quti and 750 ha were treated against hopper bands, 5th instars, and immature and mature adults groups during the first two days of February. Survey and control operations began on February 27th and still in progress on the southern coastal plains. An immature swarm was seen in Sana'a on 29 February. New breeding was seen on the southern coast near Aden where early and late instar hopper bands were present and some were forming immature adult groups.

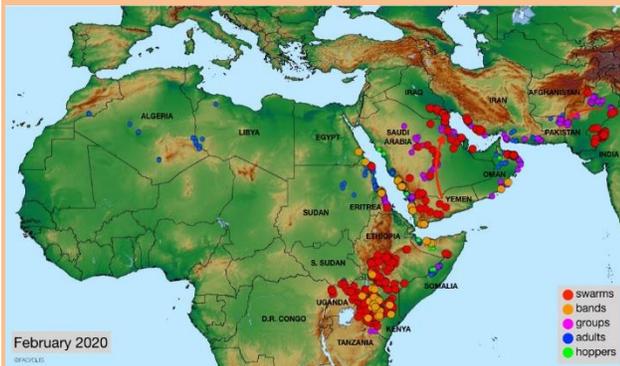
In **Saudi Arabia**, survey and control operations continued against hopper

bands along the Red Sea coasts and immature adults in the interior of the country between Wadi Dawasir and the **Persian Gulf** and ground teams treated 22,646 ha during February.

In **Oman**, control operations continued for three consecutive months against hopper bands and swarms and 2,100 ha were treated during February. Several swarms from Pakistan reached coastal areas of Oman during this month (LCC/Oman).



FAO-DLIS, 2 March 2020



FAO-DLIS, 2 March 2020

Forecast: In the coming months, egg laying, hatching and hopper, group and swarm formations will continue in eastern Ethiopia, northern Somalia, and northern and central Kenya. Swarms will likely move northwest towards Turkana, SSD and Sudan, northern and western Ethiopia and western Eritrea. Immature

swarms may also begin forming and spreading to Uganda and SSD in the coming month. Ecological conditions remain favorable for the locusts to continue breeding along the Red Sea coasts where swarms will also develop in Saudi Arabia, Sudan, Eritrea, Yemen and to some extent Oman (DLCMM/Yemen, FAO-DLIS, LCC/Oman, PPD/Djibouti, PPD/Ethiopia, PPD/Sudan).

SGR - EOR: In **Iran**, 22 immature swarms spread out along the southwest coast between Bushehr and Bander-e-Lengheh in Fars, Khozestan, Bushehr and Hormozgan provinces where they quickly matured within four days to lay eggs. Local breeding continued in the southeast. Control operations are in progress. Residual adult groups and swarms were detected and controlled in Rajasthan, India and southwestern coast of Pakistan where some locust activities were reported.

In **Pakistan**, mature adult groups and small swarms were seen copulating in Okara district of Punjab and Dera Ismail Khan and Lucky Marwat districts of Khyber Pakhtunkhwa. Spring breeding is in progress in the interior of Baluchistan between Khuzdar and Dalbandin, and on the southwest coast near Turbat where adult groups are laying eggs and early instar hopper groups are already forming. Ground teams treated 4,490 ha (18-29 Feb).

In **Iraq**, swarms were reported flying southeast between Basra and Nasiriyah. Swarms that developed in Saudi Arabia and Yemen also reached UAE and Bahrain. Three swarms were reported arrived in Khost province in **Afghanistan** from adjacent areas of NW **Pakistan** on about 21 February (FAO-DLIS).

Forecast: With ecological conditions improving in spring breeding areas in Baluchistan western **Pakistan** and southeast **Iran**, locusts will continue breeding and a new generation immature groups and swarms could start forming in Baluchistan by the end of March (FAO-DLIS).

SGR – WOR: SGR situation remained calm in the western outbreak region and only a few scattered adults were detected in Algeria, Morocco and Libya during February (ANLA/Chad, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, CNLAP/Mali, FAO-DLIS).

Forecast: Small-scale breeding is likely in northwest Mauritania, Algeria, Libya and Morocco, but the situation will generally remain calm (ANLA/Chad, CNLAP/Mali, CNLA/Mauritania, CNLAA/Morocco, FAO-DLIS, INPV/Algeria).

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): No update was received at the time this bulletin was compiled, but it is likely that NSE breeding continued in IRLCO-CSA outbreak areas where hatching is expected to have occurred in February considering ecological conditions improving from moderate the seasonal rains in Mozambique, Malawi, and Zambia during February (IRLCO-CSA).

Forecast: NSE hopper bands will continue forming in the primary outbreak areas in Tanzania, Mozambique, Malawi

and Zambia during the forecast period. Locust numbers will likely increase in all breeding areas. Timely surveys are necessary to facilitate control operations to prevent swarms to form and threaten crops (IRLCO-CSA).

Tree Locusts, *Anacridium spp.* (ASP): *No update was received at the time this bulletin was compiled, but it is likely that ASP persisted in Turkana and Marsabit countries in Kenya affecting acacia trees (IRLCO-CSA, PPD/Kenya).*

Central American Locust - *Schistocerca piceifrons piceifrons* (CAL): No update was received at the time this Bulletin was compiled.

South American Locust, *Schistocerca cancellata* (SAL): SCA outbreaks were reported in Argentina, Uruguay and neighboring areas South America during the past months.

***Tropidacris collaris* (Tucura *quebrachera* - TCO - grasshopper-):** No update was received at the time this Bulletin was compiled.

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): No locusts were reported in CAC regions and activities are not expected until spring (FAO-ECLO, OFDA/PSPM).

Fall armyworm (FAW) (*S. frugiperda*) FAW was reported in Torres Strait Australia during late January 2020 and by mid-February the pest was detected on the mainland Australia. FAW was also reported in Timor Leste attacking maize plants in February. The pest has reached most of Southeast Asia and Pacific regions. Though not reported, the pest is

expected to have continued affecting maize and other crops that are at vulnerable stages.

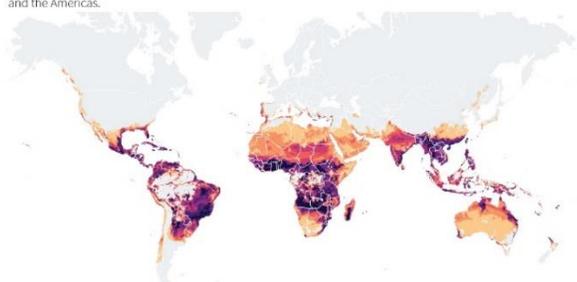
Forecast: FAW will likely continue affecting rain-fed and irrigated maize and other crops across sub-Saharan Africa, Asia, the Pacific Regions and elsewhere during the forecast period. Active monitoring, surveillance, reporting and preventive interventions remain critical to abate the damage.

Areas suitable to Fall Armyworm

Regions with little forest cover, a minimum annual temperature of 18–26 °C and receiving 500–700 mm of rainfall in the three wettest months are prone to fall armyworm infestation as predicted by the species distribution models based on occurrences in Africa and the Americas.

ENVIRONMENTAL SUITABILITY INDEX

Not suitable Marginal Suitable Highly suitable



Source: CABI, 2019. Invasive Species Compendium. Wallingford, UK: CAB International.
P. K. Dutta, 19/06/2019

REUTERS

Key Activity update: The USAID/OFDA sponsored Community-Based FAW Monitoring, Surveillance and Management project (CBFAMFEW) was implemented in six countries in eastern Africa from 2017 to August 2019. The project trained close to 1,400 senior PPD staff, district agricultural experts, lead farmers, extension agents, lead farmers and village leaders. More than 10,000 farmers and villagers were sensitized on FAW-360 in participating countries. A network of forecasters and scouts were also established across 300 villages in project countries. Strong relationships were established among experts and implementing partners and commitments from participating countries were garnered to ensure sustainability of collective and individual gains of the initiative.

Note: Several species of natural enemies of FAW have been identified in Ethiopia, Kenya, Tanzania, Madagascar, India, etc. and are being further studied to determine their efficacy, environmental impacts and safety. Some are being tested along-side other agro-ecological tools, e.g., push-pull technology, to develop effective, affordable, accessible, adaptable and sustainable means of managing the pest. **End note.**

Information resources

NOTE: Highly hazardous pesticides cannot and must not be considered or used for FAW control. END NOT

USAID/BFS and OFDA co-funded IPM based FAW management guidance, available in English and French and will be available soon in Portuguese:

https://www.usaid.gov/sites/default/files/documents/1867/Fall-Armyworm-IPM-Guide-for-Africa-Jan_30-2018.pdf

CBAMFEW project sites:

<http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=8ff7a2eefbee4783bfb36c3e784e29cb>

BFS and SAWBO (Scientific Animation Without Borders) developed a video clip on FAW:

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

USAID Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) contains a list of pesticides assessed as relatively safer for use against FAW:

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

CABI FAW Portal: identification

guides: <https://www.cabi.org/ISC/fallarmyworm>

Bt maize and the fall armyworm in Africa (Africa Center for Biodiversity, June 2018):

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

Invasive Species Compendium Datasheets, maps, images, abstracts and full text on invasive species of the world:

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

FAO interactive FAW Risk-Index heat map to help monitor potential risk of FAW infestation in countries where the pest has been reported <http://www.fao.org/emergencies/resources/maps/detail/en/c/1110178/>

NURU, a mobile phone application detects FAW eggs, larvae, pupae and damage on maize crops is developed by Penn State University in collaboration with UNFAO: <http://www.fao.org/news/story/en/item/1141889/jcode/>

Safer, affordable, and adaptable IPM-based pest management and assessment tools remains critical in abating FAW infestations and minimize crop damage.

African Armyworm (AAW): No update was received at the time this bulletin was compiled, but it is likely that the pest may have continued threatening crops in the southern outbreak region and began appearing in the southern end of the eastern outbreak zone during this month.

Forecast: AAW activities will likely continue in the southern outbreak region and appear in the eastern outbreak zone during the forecast period (IRLCO-CSA, OFDA/PSPM).

Note: OFDA developed printable and web-based interactive maps for AAW: <http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=9d2ab2f918284595819836d1f16a526f>

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

OFDA/PSPM is considering a similar map for the CBFAMFEW countries.

Southern Armyworm (*Spodoptera eridania*) (SAW/SER). SAW was not reported during this month.

Strong quarantine services and monitoring and surveillance remain essential to prevent invasive pests invading a new territory.

Quelea sp. (QSP): The presence of large numbers of QSP birds was reported in

Chato, Shinyanga and Bahi districts in Tanzania. No outbreaks were reported elsewhere during this month (DLCO-EA, IRLCO-CSA).

Forecast: QSP outbreaks are expected to start in the southern Africa region from March/April when small grain crops mature and Kenya, Tanzania and Zimbabwe will be most at risk. Increased vigilance and timely interventions remain critical to avert crop damage (DLCO-EA, IRLCO-CSA).

Facts: QSP birds can travel ~100 km/day in search of food. An adult *Quelea* bird can consume 3-5 grams of grain and destroy the same amount each day. A medium density *Quelea* 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 rodent pests are constant pre- and post-harvest threats to crops, produce and infrastructure. Vigilance and rapid responses remain critical to abate major damage.

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 disease this pest carry/transmit.

All ETOP front-line countries must maintain regular monitoring and surveillance as needed. During cropping seasons, regular scouting is critical to

avoid crop damage/losses. Invasion countries should remain alert. DLCO-EA, IRLCO-CSA, DLCCs, DLMCC, CNLAs, national DPVs and PPDs, ELOs are encouraged to continue sharing ETOP information with stakeholders as often as possible. It is critical that lead farmers, field scouts, community forecasters and others remain vigilant and report ETOP detections to relevant authorities as quickly as immediately.

OFDA's Contributions to ETOP Abatement Interventions

USAID/OFDA/PSPM is sponsoring through Arizona State University an operational research on soil amelioration to manage the Senegalese grasshopper (OSE). OSE is a notorious pest of cereal crops and pasture causing serious damage to small-scale farmers in its wide geographic coverage which extends from the Canneries, Cape Verde to nearly all sub-Saharan regions of Africa to India and neighboring countries. OSE occurs more frequently than several other grasshopper/locust species and is a constant threat to small-scale farmers.

USAID/OFDA/PSPM is interacting with interested parties to explore means and ways to expand innovative technologies to countries affected by AAW, FAW and SGR to contribute to food security and livelihoods of vulnerable people and communities.

The online Pesticide Stock Management System (PSMS) that was developed by FAO with financial assistance from donors, including USAID/OFDA, continues benefiting participating countries across the globe. Thanks to the system, SGR frontline countries and others are effectively managing their strategic pesticide stocks and have been able to minimize/avoid accumulation of unusable

and toxic obsolete 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 does not support highly hazardous pesticides. It promotes an IPM approach to minimize risks associated with pesticide poisoning, stockpiling, and environmental pollution. 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 and can be safely and effectively utilized is worth considering

Inventory of Strategic Pesticide Stocks for SGR Control

Inventory of Strategic SGR Pesticide Stocks changed in all regions as close to 123,000 ha were reported treated in total during the month (Bahrain = 3; Egypt = 1154; Eritrea = 12,163, Ethiopia = 41,050, India = 11,420, Iran = 2,617, Iraq = 69; Kenya = 15,000; Oman = 2,100, Pakistan = 8,299, Saudi Arabia = 22,646, Somalia = 1,053, Sudan = 5,050, and Yemen = 1,475 (DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Ethiopia, PPD/Sudan).

Table 1. Estimated inventory of strategic SGR Pesticide Stocks in Frontline Countries during this month

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~
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
Tunisia	62,200 obsolete
Yemen	35,092 ^D ; 180 kg GM~
<p>*Includes different kinds of pesticide and formulations - ULV, EC and dust;</p> <p>~ data may not be the current;</p> <p>^D = Morocco donated 100,000 l of pesticides to Madagascar and 10,000 l to Mauritania in 2015</p> <p>^D = In 2013 Morocco donated 200,000 l to Madagascar</p> <p>^D = Saudi donated 10,000 to Yemen and pledged 20,000 l to Eritrea</p> <p>^{DM} = Morocco donated 30,000 l of pesticides to Mauritania</p> <p>GM = <i>GreenMuscle</i>TM (fungal-based biological pesticide)</p>	

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
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	Kg	Kilogram (~2.2 pound)
DLMCC	Desert Locust Monitoring and Control Center, Yemen	L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
DMA	<i>Dociostaurus maroccanus</i> (Moroccan Locust)	LCC	Locust Control Center, Oman
DPPQS	Department of Plant Protection and Quarantine Services, India	LMC	<i>Locusta migratoriacapito</i> (Malagasy locust)
DPV	Département Protection des Végétaux (Department of Plant Protection)	LMM	<i>Locusta migratoria migratorioides</i> (African Migratory Locust)
ELO	EMPRES Liaison Officers –	LPA	<i>Locustana pardalina</i>
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases	MoAFSC	Ministry of Agriculture, Food Security and Cooperatives
EOR	Eastern SGR Outbreak Region	MoAI	Ministry of Agriculture and Irrigation
ETOP	Emergency Transboundary Outbreak Pest	MoARD	Ministry of Agriculture and Rural Development
Fledgling	immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed	NALC	National Agency for Locust Control
GM	GreenMuscle® (a fungal-based biopesticide)	NCDLC	National Center for the Desert Locust Control, Libya
ha	hectare (= 10,000 sq. meters, about 2.471 acres)	NOAA (US)	National Oceanic and Aeronautic Administration
ICAPC	IGAD's Climate Prediction and Application Center	NPS	National Park Services
IGAD	Intergovernmental Authority on Development (Horn of Africa)	NSD	Republic of North Sudan
IRIN	Integrated Regional Information Networks	NSE	<i>Nomadacris septemfasciata</i> (Red Locust)
IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa	OFDA	Office of U.S. Foreign Disaster Assistance
ITCZ	Inter-Tropical Convergence Zone	PBB	Pine Bark Beetle (<i>Dendroctonus</i> sp. – true weevils)
ITF	Inter-Tropical Convergence Front = ITCZ)	PHD	Plant Health Directorate
FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service	PHS	Plant Health Services, MoA Tanzania
Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)	PPD	Plant Protection Department
JTWC	Joint Typhoon Warning Center	PPM	Pest and Pesticide Management
		PPSD	Plant Protection Services Division/Department
		PRRSN	Pesticide Risk Reduction through Stewardship Network
		QSP	<i>Quelea</i> species (Red Billed <i>Quelea</i> bird)
		SARCOF	Southern Africa Region Climate Outlook Forum
		SCA	<i>Schistocerca cancellata</i> (South American Locust)
		SFR	<i>Spodoptera frugiperda</i> (SFR) (Fall armyworm (FAW))
		SGR	<i>Schistoseca gregaria</i> (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 fairly 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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