

**Emergency Transboundary Outbreak Pest (ETOP) Situation Bulletin for
January 2021 with a forecast through mid-March 2021**
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹): SGR continued developing in the central outbreak region (COR) where increased numbers of swarms were reported in eastern Ethiopia and central Somalia and many migrated northeastern Ethiopia and reached Eritrea. Some swarms also reach southern Red Sea coast in Eritrea. Mature swarms, hatching and band formations were reported in northern the central region migrated to adjacent areas in Ethiopia and reached northern and northeastern Kenya. Numerous immature swarms persist in Ethiopia and Kenya. No additional swarms arrived in Kenya the last few days suggesting that the peak of allochthonous invasion in Kenya has declined. Hopper bands and adult groups were reported in winter breeding areas on the Red Sea coasts in Sudan and Eritrea and the southeastern coast of Egypt. Swarms moved from northern Yemen and continued breeding in southern Red Sea coasts of Saudi Arabia. Control operations treated 316,414 ha largely in COR during January, showing a slight decrease from December 2020 control (336,900 ha). In the western outbreak region (WOR), the situation remained calm and control was carried out on just 42 ha in Mauritania and Algeria. The eastern outbreak region (EOR) remained calm. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Forecast: In COR, if ecological conditions improve, swarms that spread to southern and southwestern Ethiopia, northern and central Kenya and southern Somalia will likely mature and begin breeding during the forecast period. New swarms are expected to form in northern Somalia and move to the western highlands. Swarms may also form on Red Sea coast of Saudi Arabia and move to spring breeding areas in the interior; some may also form on the Red Sea coast of Sudan, Eritrea, and perhaps Yemen, but decline in Egypt. In WOR, isolated locusts could persist in northwest Mauritania, northern Mali and Niger, and Morocco and small-scale spring breeding may occur south of the Atlas Mountains, but significant developments are not likely during the forecast period. In EOR, small-scale breeding may begin in the southeast of Iran and southwest of Pakistan at the foothills of the seasonal rains. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): NSE situation remained generally calm. Mating and egg laying as well as hatching are in progress in primary outbreak areas.

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

African Migratory Locust: *Locusta migratoria migratorioides (LMI)*: LMI hoppers were reported in Botswana, Namibia and Zambia and a similar situation is likely in neighboring areas in Ageola.

Tree Locusts, *Anacridium spp. (ASP)*: No report on ASP during this month.

Central American Locust, *Schistocerca piceiferons (SPI)*: No update was received, but it is likely SPI persisted in Central American.

South American Locust, *Schistocerca cancellata (SCA)*: SCA hopper bands were expected to have continued maturing Argentina and perhaps Bolivia, Uruguay and Paraguay.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): DMA, CIT and LMI activities ended in CAC and the situation will remain calm till spring.

Fall Armyworm (*Spodoptera frugiperda*) (**FAW**): FAW was reported attacking maize, sorghum and/or millet in Tanzania, Kenya, Malawi and Zambia.

African Armyworm (AAW) (*Spodoptera exempta*): AAW outbreaks were reported attacking maize and rice in several districts of Mozambique.

Quelea spp. (QSP): QSP outbreaks were reported in sorghum, millet and/or green grams in Kilimanjaro Region of Tanzania and Katui, Makueni and Narok counties in Kenya.

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 de se développer dans la région centrale de l'épidémie (COR) où un nombre accru d'essaims a été signalé dans l'est de l'Éthiopie et le centre de la Somalie et beaucoup ont migré vers le nord-est de l'Éthiopie et ont atteint

l'Érythrée. Certains essaims atteignent également la côte sud de la mer Rouge en Érythrée. Des essaims matures, des éclosions et des formations de bandes ont été signalés dans le nord de la région centrale, ont migré vers les zones adjacentes en Éthiopie et ont atteint le nord et le nord-est du Kenya. De nombreux essaims immatures persistent en Éthiopie et au Kenya. Aucun essaim supplémentaire n'est arrivé au Kenya ces derniers jours, ce qui suggère que le pic de l'invasion allochtone au Kenya a diminué. Des bandes larvaires et des groupes d'ailés ont été signalés dans les zones de reproduction hivernale des côtes de la mer Rouge au Soudan et en Érythrée et sur la côte sud-est de l'Égypte. Des essaims se sont déplacés du nord du Yémen et ont continué à se reproduire sur les côtes méridionales de la mer Rouge en Arabie saoudite. Les opérations de lutte ont traité 316 414 ha en grande partie dans le COR en janvier, montrant une légère diminution par rapport à la lutte de décembre 2020 (336 900 ha). Dans la région ouest de l'épidémie (WOR), la situation est restée calme et le contrôle a été effectué sur seulement 42 ha en Mauritanie et en Algérie. La région de l'est du foyer (EOR) est restée calme. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Prévisions: Au COR, si les conditions écologiques s'améliorent, les essaims qui se sont répandus dans le sud et le sud-ouest de l'Éthiopie, le nord et le centre du Kenya et le sud de la Somalie arriveront probablement à maturité et commenceront à se reproduire au cours de la période de prévision. De nouveaux essaims devraient se former dans le nord de la Somalie et se déplacer vers les hautes terres de l'ouest. Des essaims peuvent également se former sur la côte de la mer Rouge en Arabie saoudite et se déplacer vers les zones de reproduction printanière à l'intérieur; certains peuvent également se former sur la côte de la mer Rouge au Soudan, en Érythrée et peut-être au Yémen, mais déclinent en Égypte. Dans le WOR, des criquets isolés pourraient persister dans le nord-ouest de la Mauritanie, le nord du Mali et du Niger et au Maroc et une reproduction printanière à petite échelle pourrait avoir lieu au sud des montagnes de l'Atlas, mais des développements significatifs ne sont pas probables au cours de la période de prévision. En EOR, une reproduction à petite échelle peut commencer dans le sud-est de l'Iran et le sud-ouest du Pakistan au pied des pluies saisonnières. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Criquet nomade (*Nomadacris septemfasciata*) (NSE): La situation NSE est restée généralement calme. L'accouplement et la ponte ainsi que l'éclosion sont en cours dans les principales zones de foyer.

Criquet migrateur africain: *Locusta migratoria migratorioides* (LMI): Criquet migrateur africain: *Locusta migratoria migratorioides* (LMI): Des larves de LMI ont été signalées au Botswana, en Namibie et en Zambie et une situation similaire est probable dans les zones voisines d'Ageola.

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

Criquet Amérique centrale, *Schistocerca piceifrons piceiferons* (SPI): Aucune mise à jour n'a été reçue, mais il est probable que la SPI a persisté en Amérique centrale.

Criquet d'Amérique du Sud, *Schistocerca cancellata* (SCA): SCA bandes larvaires ont été détectées et contrôlées dans les provinces de Salta, Jujuy, Tucuman et Santiago del Estero en Argentine.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): Les activités DMA, CIT et LMI se sont terminées à CAC et la situation restera calme jusqu'au printemps.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*) (FAW): a été signalée attaquant le maïs, le sorgho et / ou le mil en Tanzanie, au Kenya, au Malawi et en Zambie.

Chenille Légionnaire africaine (AAW), *Spodoptera exempta*: Des foyers d'AAW ont été signalés attaquant le maïs et le riz dans plusieurs districts du Mozambique.

***Quelea spp. oiseaux* (QSP):** Des foyers de QSP ont été signalés dans le sorgho, le mil et / ou les grammes verts dans la région du Kilimandjaro en Tanzanie et dans les comtés de Katui, Makueni et Narok au Kenya.

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

In COR, insignificant rain fell in Kenya and southern Ethiopia during January and light showers were reported in northwest Kenya on the first in Turkana county and scattered showers at times during the first week in Masabit county extending to adjacent areas of southwest Ethiopia. During the remainder of the month, light rain fell occasionally near Lake Turkana and in parts of the Rift Valley in southern Ethiopia. Ecological conditions were somewhat favorable for breeding in eastern Kenya (Wajir, Garissa) and parts of the north (Marsabit) while other areas were dry. In Ethiopia, vegetation was drying out in the eastern region (Somalia) and dry weather persisted in the northeast (Afar). Vegetation was green in some areas in the south (SNNP, southern Oromia). In Somalia, vegetation was drying out in central areas but remained green on the northwest coast and in the northeast. Light to moderate showers fell in winter breeding areas on the southern coastal plains in Saudi Arabia between Lith and Jizan during the first two dekads. Vegetation remained green along the coastal plains on both sides of the Sudan/Eritrea border and on the Saudi Arabian coast from Jizan to Al Wajh. Conditions were drying out on the Red Sea and Gulf of Aden coastal plains in Yemen and along Wadi Diib in northeast Sudan and adjacent coastal and sub-coastal areas of southeast Egypt. Light rains fell in spring breeding areas during the first dekad in the northern interior of Saudi Arabia near Gassim where low temperatures prevailed. Light showers fell at times on the eastern coast of Oman south of Hayma. Dry conditions are expected in the interior of Yemen (FAO-DLIS, DLMCC/Yemen, LLC/Oman, SPV/Djibouti, PPD/Eritrea, PPD/Sudan, NOAA).

In EOR, light rain fell at times in spring breeding areas in Sistan-Baluchistan in southeast Iran and Baluchistan in southwest Pakistan where conditions were dry, cold, and unfavorable for breeding (FAO-DLIS).

In WOR, there has not been significant rain in the region for the past three months and as a result, vegetation continued drying out in the primary breeding areas – in western Mauritania, the Air Mountains of northern Niger, southeast Algeria, and northern Western Sahara. Only a few small pockets of green vegetation were detected between Akjoujt and Atar in northwest Mauritania, between Aguelhoc and Ti-n-kar in northern Mali, on the Atlantic coast of Morocco between Tan-Tan and Guelmim, and near irrigated perimeters in the Adrar Valley of the central Sahara in Algeria (ANLA/Chad, CNLAA/Mauritania, CNLAA/Morocco, CNLP/Mali, FAO-DLIS).

In the NSC regions, seasonal rain that started in November continued and causing flooding in some places. Heavy rains were recorded in several places in Tanzania – Masenge (Wembere Plain), Kaliua (Malagarasi Basin), Mpanda (Ikoo-Katavi Plains) and Muze (Lake Rukwa Plains); in Malawi - Makoka (Lake Chilwa Plain) and Ntanja (Lake Chiuta Plain) and in Mozambique -Nhamatanda (Buzi-Gorongosa Plains, Buzi (Buzi-Gorongosa Plains), Caia (Dimba plains) and in Zambia - Namwala (Kafue Flats). Heavy rains were also reported in Botswana, Namibia and Zimbabwe (IRLCO-CSA).

CAC Region: In CAC, remained cold and dry.

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

The **Desert Locust** (*Schistoseca gregaria* - **SGR**²) in COR: SGR continued further developing and numerous hoppers and swarms were forming in northern, northeastern and central Somalia and eastern Ethiopia. Swarms were spreading southeastern and southwestern Ethiopia, and westwards across northern and central counties of Kenya where several small swarms (about 50 ha and smaller) were detected in several places. Later in the month, a small swarm reached Keiyo-Marakwet county in the west and another one was reported in Turkana county in the northwest on Feb 4th. Some of the swarms were detected in community areas and unsuitable for chemical control. Swarms that spread to southeastern Kenya reached Manyara region in eastern

Tanzania during early January. During this month, control operations treated a total of 316,414 ha during January (166,158 ha in Ethiopia, 39,036 ha in Kenya, 53,665 ha in Somalia, 7,122 ha in Sudan, 2,116 ha in Eritrea, 755 ha in Egypt, and 47,070 ha in Saudi Arabia), slightly lower than areas the 336,900 ha that were controlled in the region during December 2020. Control operations are being implemented to reduce the chance for 2nd generation breeding in the Horn of Africa. In Tanzania, DLCO-EA aircraft controlled maturing and mature swarms on 450 ha in Olichoronyori (0347S/3718E) and Landani (0410S/3707E) in Simanjiro District, Manyara region on the 10th and 16th January using Fenitrothion 96% ULV. The swarms arrived from southeast Kenya swarms during early 1st dekad of January early.

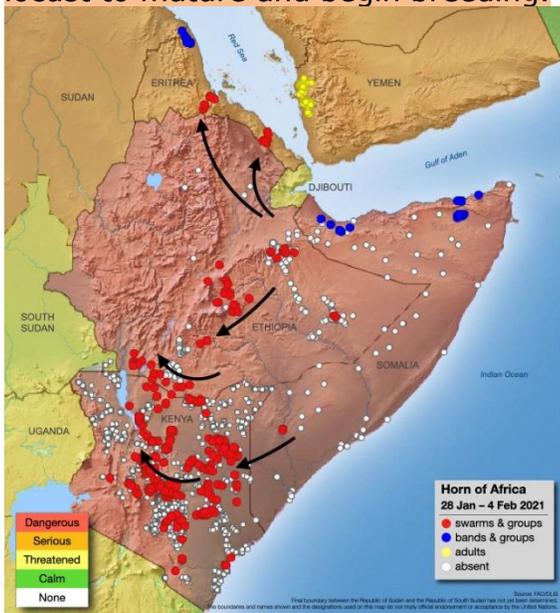
Survey and control operations continued in Eritrea, Egypt, Saudi Arabia, Sudan and Yemen against immature, maturing and mature swarms and adult groups. In Yemen, survey covered some 207,020 ha and detected immature and mature swarms and adult groups in a few places in the Amran, Hajjah and Sana'a highlands and in Tehama coastal areas in Al Luhayyah and Bait Al Faqih districts and swarms moved towards northwest and northeast where access is extremely limited. Low numbers of scattered immature and mature solitary and gregarious adults were detected in several locations on the Red Sea coast between Abs and Bait Al Faqih districts. Immature and mature solitary adults were reported on the Gulf of Aden coast between Am-Rajaa and Bir Ali. Control operations were not possible in Yemen due to beehives, security (DLCO-EA,

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

DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Eritrea, PPD/Sudan, SPPV/Djibouti).

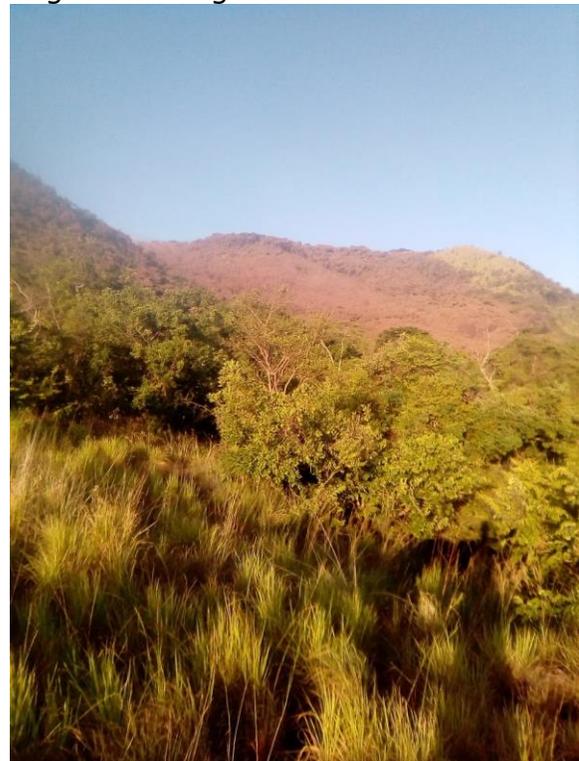
Forecast: Swarms will likely continue to form in northern Somalia. Considerable numbers of immature swarms that persisted in southern Oromia, Harar highlands, parts of southern Rift Valley, and SNNPR in Ethiopia and northern and northcentral regions of Kenya will likely begin maturing and breeding provided conditions become favorable. Additional allochthonous swarm invasions were not reported in Kenya during the last few days of January into early February suggesting that massive invasion has ended. However, there is a risk that a few swarms from northwestern and northern Kenya could reach northeastern part of Uganda and extend into southeastern South Sudan in the coming weeks unless conditions become favorable for the locust to mature and begin breeding.

coastal areas and additional residual swarms may arrive from neighboring countries. Locusts will continue appearing in winter breeding areas in Sudan during the forecast period. There is a chance that a few swarms that may be present in inaccessible parts of northern Yemen due to security reason could move to adjacent areas in southwest Saudi Arabia and begin breeding.

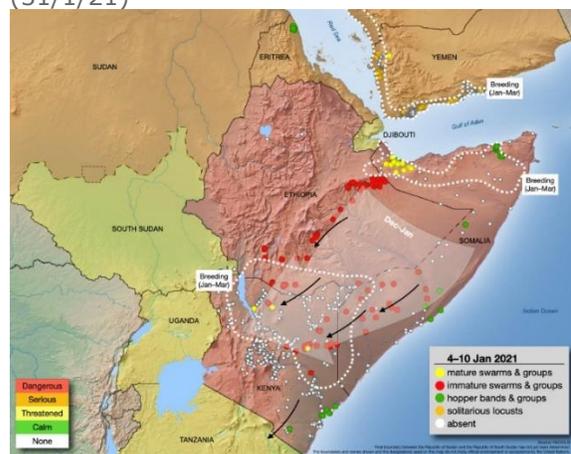


SGR presence in east Africa and the Red Sea coasts (FAO-DLIS)

Intense control of hoppers, bands and swarms remain critical to reduce the potential scale of the next generation of breeding in the Horn of Africa. In Eritrea, breeding will continue along the Red Sea



Immature adult swarms (pick area) roosting on shrubs and trees in Kiera Hills in Tharaka, Kenya (31/1/21)



SGR in eastern Africa and the Red Sea coastal areas during the first dekad of January (FAO-DLIS)

Intensive monitoring and control operations remain critical to avert any major threats and minimize damage to crops and pasture in the months to come (DLCO-EA, DLMCC/Yemen, FAO-DLIS, PPD/Eritrea, PPD/Sudan, SPPV/Djibouti).

SGR - EOR: EOR) remained calm during January (BHA/FSL, FAO-DLIS).

Forecast: In EOR, breeding and hopper formations may commence in southwest coast of Iran provided ecological conditions become favorable, but no major development is expected (BHA/FSL, FAO-DLIS).

SGR – WOR: In WOR, the SGR situation remained generally calm during January and only a few isolated adults were detected in Mauritania, Mali, Niger and Morocco and control operations treated 40 ha in Mauritania and 2 ha in Algeria (ANLA/Chad, CNLAA/Mauritania, CNLAA/Morocco, CNLCP/Mali, CNLA/Tunisia, FAO-DLIS).

Forecast: In WOR, isolated locusts will likely persist in northwest Mauritania, northern Mali and Niger, and Morocco and small-scale breeding could occur south of the Atlas Mountains; other countries in the region will remain calm (ANLA/Chad, CNLAA/Mauritania, CNLAA/Morocco, CNLCP/Mali, CNLA/Tunisia, FAO-DLIS).

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 situation remained relatively calm. However, successful breeding likely occurred causing hoppers of various

densities to form in Lake Chilwa/Lake Chiuta plains, Malawi; IkuuKatavi plains, Wembere plains, North Rukwa plains and Malagarasi Basin in Tanzania; the Dimba and Buzi plains in Mozambique and in the Kafue Flats in Zambia where significant adult populations were present at the onset of the rains. Continued seasonal rainfall in most of the outbreak areas during the month is expected to have improved breeding conditions (IRLCO-CSA).

Forecast: Hatching will continue and form hoppers and bands during the forecast period in the primary outbreak areas - These areas include Ikuu-Katavi, Rukwa plains, Wembere plains and Malagarasi Basin in Tanzania; Buzi and Dimba plains in Mozambique; Lake Chilwa/Lake Chiuta plains in Malawi and the Kafue Flats in Zambia. IRLCO-CSA will carry out survey and undertake control where high density hopper bands will be located (BHA/TPQ, IRLCO-CSA).

African Migratory Locust (LMI):

Intensive surveillance and control operations reduced LMI populations in Botswana, Namibia and Zambia during early December 2020. However, by January 2021, substantial populations persisted in the region and high density late instar hoppers (100-1,000/m²) were detected in Botswana's northwest district and in the Zambezi region of Namibia. In Zambia, low (4-5/m²) to medium (up to 10/m²) density hoppers were reported in Bombwe Camp, Mulwani, and Sikaunzwe villages in Kazungula district in Southern Province and in Dihehe, Sinjembela, Likulushitu and Lipaneno villages in Sioma districts in Western Province. Ground control was hampered by bad, and flooded roads. It was reported that surveillance covered an estimated

956,456 ha in Botswana of which 84,811 ha infested and 708 ha were controlled; in Namibia, 300,000 ha were surveyed, 200,000 ha were reported infested and 20,000 ha were controlled; in Zambia, 170,000 ha were surveyed, 40,000 ha infested and 21,100 ha controlled during January. No data was available for Angola at the time this bulletin was compiled, however, LMI is expected to be present in areas bordering northwest Botswana, northern Namibia and western Zambia where heavy rain and localized flooding created favorable conditions for the locusts to lay eggs and further breed. Owing to favorable ecological conditions, an estimated area of 283,711 ha will likely be requiring control in Botswana and Namibia with additional treatable populations in adjacent breeding areas in neighboring countries in the coming months. Intensive surveillance and timely control interventions remain critical to prevent serious damage to the upcoming cropping and harvest season in the region. In Zimbabwe, surveys are in progress in Masvingo, Midlands and Manicaland. FAO provided 40 kg of a biopesticide enough to cover control 800 ha which is expected to be used for sensitive areas (FAO-ROS, IRLCO-CSA).

Forecast: Due to favorable ecological conditions created by above normal rainfall in AML breeding areas, breeding will likely occur over vast areas requiring extensive control operations in primary outbreak and invasion areas in Botswana and Namibia as well as adjacent areas in neighboring countries in the coming months. Active surveillance and timely control intervention remain critical to prevent significant damage to crops and grazing land in the region (BHA/FSL, FAO-ROS, IRLCO-CSA).

Note: FAO Southern Africa in consultation with IRLCO-EA and member states developed an action plan (AP) for the AML operations in the region. The AP has since been updated by SADC and increased an appeal to USD 21 million. The updated AP will include coordination, response, preparedness, food security and livelihoods of millions of affected people in targeted countries in the region. FAO is working in close contact with SADC, MoAs, IRLCO-CSA, donors and other stakeholders to help launch the AP and address the AML threat to food security and livelihoods of millions of people (FAO/Southern Africa).

Central American Locust - *Schistocerca piceifrons* (SPI): No update was received at the time this bulletin was compiled though it is likely the pest is in season.

[**Note:** CAL is a pest of economic importance in Mexico and Central America and attacks 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* (SCA) (a.k.a. Flying lobster): No update was received at the time this bulletin was compiled; however, undetected hopper bands from previous populations that were detected and controlled in several provinces in northern Argentina, including Salta, Jujuy, Tucuman and Santiago del Estero during December are expected to have continued further developing and maturing. Control operations are expected to target populations in invasion areas. The pest may be present in neighboring areas in Bolivia, Uruguay and/or perhaps Paraguay.

<https://www.voanews.com/americas/argentina-battles-locust-plaque-northern-province>.

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): No activities were reported and the situation will remain calm till spring (BHA/TPQ/FSL) <http://www.fao.org/locusts-cca/en/>

Fall armyworm (FAW): FAW outbreaks were reported in all 28 districts in Malawi with Nsanje, Chikwawa, Neno, Mulanje, Machinga and Baraka districts most affected. The pest was reported attacking mainly maize, sorghum and millet and control operations were carried out by the affected farmers with technical and material assistance from the MinAgri, Irrigation and Water Development. A total area of 96 280 ha was reported sprayed with using 9,211 lt of pesticides. In Mozambique, outbreaks were reported in maize and rice in several districts in Dondo (40 ha Maize and 55 ha Rice), Nhamatanda (73.5 ha Maize), Buzi (12 ha Maize and 35 ha Rice) districts of Sofala Province. Control was carried out by the affected farmers with technical and material (pesticides) from the MinAgri. In Zambia, widespread FAW outbreaks were reported in all 10 Provinces – Eastern, Central, Luapula, Lusaka, Muchinga, North Western, Southern, Western, Northern and Copper belt Provinces. The pest was reported attacking maize and control was carried out by the affected farmers with technical and materials support from the MinAgri and was in progress at the time this Bulletin was compiled. In Tanzania, FAW outbreaks were reported in Dodoma municipal, Manyoni and Kilindi districts where MinAgri distributed pesticide supplies to the affected districts. In Kenya, FAW reports were received from Makueni, Trans Noia, West Pokot, Bungoma, Machakos, Homabay and Tharaka/Nithi

Counties. MinAgri provided pesticides to the affected countries and control operations were launched by the affected farmers (IRLCO-CSA). In a recently released FAO Newsletter on FAW Control, neem was mentioned as an effective means of controlling FAW [larvae] in Ethiopia (BHA/TPQ, FAO-FAW).

Forecast: FAW is likely to continue affecting rain-fed and/or irrigated maize and other cereal crops across sub-Saharan Africa, Asia, the Pacific Regions and elsewhere during the forecast period. Active monitoring, surveillance, reporting and timely actions remain critical to abate significant crop damage (BHA/TPQ).

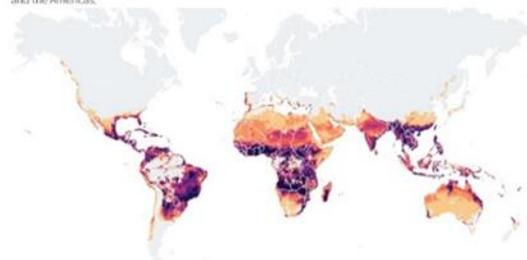
Events on FAW: The Food and Agriculture Organization of the United Nations (FAO) proposed a bold, transformative and coordinated Global Action for Fall Armyworm Control (GAFC) (<https://www.ippc.int/en/the-global-action-for-fall-armyworm-control/>). A total budget of USD 500 million is estimated to implement the GAFC in 65 target countries in Africa, Near East and Asia-Pacific from 2020 to 2022.

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
0 10 20 30 40 50 60 70 80 90 100



Source: CAB, 2019. Invasive Species Compendium, Wallingford, UK: CAB International. P. K. Datta, 15/06/2015

REUTERS

A total budget of USD 500 million is estimated to implement the GAFC in 65 target countries in Africa, Near East and Asia-Pacific from 2020 to 2022. This envisages 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 reported attacking maize and rice in Dondo, Nhamatanda and Buzi districts of Mozambique (IRLCO-CSA).

Forecast: AAW will likely continue in parts of Mozambique during the forecast period (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.

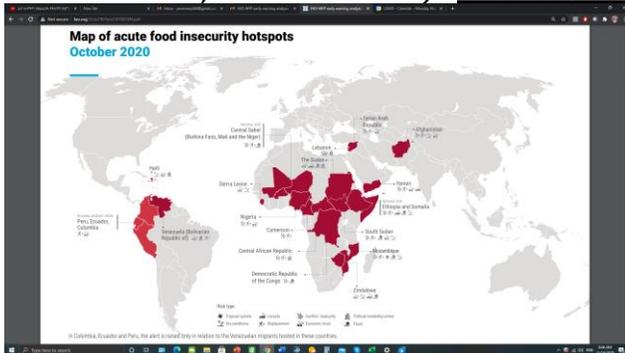
Quelea sp. (QSP): QSP outbreaks were reported in Moshi and Mwanza districts in Kilimanjaro region and Simanjiro district in Manyara region in Tanzania where they were reported roosting on sugarcane and Typhae grass and sugarcane before attacking irrigated rice. Aerial control operations were carried out using DLCO-EA with material supplies from MinAgri. QSP outbreaks were also reported attacking sorghum, millet and green grains in Athi, Mutha, Ikutha and Mutomo districts/wards in Kitui county in Kenya where aerial control was carried out by DLCO-EA air assets. Survey was in progress in Narok country to determine magnitude of infestation and need for control (DLCO-EA, IRLCO-CSA).

Forecast: QSP outbreaks will likely continue being a problem to irrigated rice growers in Kenya and central regions of Tanzania as well as elsewhere where small grain crops are in their habitat range (IRLCO-CSA).

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 report was received during this month, but it is likely that the pest continues being a problem to crops and produce (BHA/TPQ).

NOTE: Acute food insecurity hotspots map (see below) 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). **END NOTE**



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 and pasture and causes serious affects 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 January, 316,414 ha were reported controlled in COR (166,158 ha in Ethiopia, 39,036 ha in Kenya, 53,665 ha in Somalia, 7,122 ha in Sudan, 2,116 ha in Eritrea, 755 ha in Egypt, and 47,070 ha in Saudi Arabia), slightly lower than the 336,900 ha treated in December. 40 ha were treated in Mauritania and 2 ha in Algeria during this month (CNLAA/Mauritania, DLCO-EA, FAO-DLIS, PPD/Eritrea, 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	14,150
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 = *Green Muscle*TM (fungal-based biological pesticide, e.g., NOVACRID)

LIST OF ACRONYMS

AAW African armyworm (*Spodoptera expempta*)

AELGA Assistance for Emergency Locust Grasshopper Abatement

AFCS Armyworm Forecasting and Control Services, Tanzania

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

LPA *Locustana pardalina*
 MoAFSC Ministry of Agriculture, Food Security and Cooperatives
 MoAI Ministry of Agriculture and Irrigation
 MoARD Ministry of Agriculture and Rural Development
 NALC National Agency for Locust Control
 NCDLC National Center for the Desert Locust Control, Libya
 NOAA (US) National Oceanic and Aeronautic Administration
 NPS National Park Services
 NSD Republic of North Sudan
 NSE *Nomadacris septemfasciata* (Red Locust)
 OFDA Office of U.S. Foreign Disaster Assistance
 PBB Pine Bark Beetle (*Dendroctonus* sp. – true weevils)
 PHD Plant Health Directorate
 PHS Plant Health Services, MoA Tanzania
 PPD Plant Protection Department
 PPM Pest and Pesticide Management
 PPSD Plant Protection Services Division/Department
 PRRSN Pesticide Risk Reduction through Stewardship Network
 QSP *Quelea* species (Red Billed *Quelea* bird)
 SARCOF Southern Africa Region Climate Outlook Forum
 SCA *Schistocerca cancellata* (South American Locust)
 SFR *Spodoptera frugiperda* (SFR) (Fall armyworm (FAW))
 SGR *Schistoseca 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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<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>