

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

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹): In the central outbreak region (COR), SGR situation remained extremely serious in **East Africa** where significant populations are present and continue developing during May. Control operations treated more than 101,00 ha largely in **Ethiopia, Kenya, Somalia, Saudi Arabia** and **UAR**. Breeding continues in the southern and eastern coastal plains and the interior of **Yemen** where heavy rains and floods from the previous month created favorable conditions. In the eastern outbreak region (EOR) hoppers, adult groups and swarms from spring breeding areas in southern **Iran** and Baluchistan, Indus Valley, and Punjab of **Pakistan** persisted during this month. Immature swarms from these areas that arrived in Rajasthan, **India** earlier than usual, ahead of the monsoon rains, spread further, some reaching the central and northern states and triggering an alarm in the country. Control operations treated more than 231,200 ha in EOR during this month. The western outbreak region (WOR) remained calm and only local breeding occurred in **Algeria** while mature adults may be present in northern **Mali** but could not be confirmed due limited access.

Forecast: Control operations are in progress in Eastern Africa, the Arabian Peninsula and Southwest Asia, but locust developments will continue during the forecast period. Swarms from Ethiopia, Kenya and Somalia will likely invade Djibouti, Eritrea, Uganda, South Sudan and/or Sudan and those from Yemen will likely cross Gulf of Aden and reach northeastern Ethiopia and eastern Somalia. There is a chance that swarms from northern Saudi Arabia may also arrive in Sudan. Swarms that arrive in Sudan from neighboring countries could spread westward and reach WOR. In the EOR, summer breeding is expected to intensify from swarms that have arrived and continue arriving from spring breeding parts of the region, compounded by those from Yemen and the Horn of Africa and local populations. In WOR, breeding may commence at the onset of summer rains. Given the severity of the ongoing locust invasions and the threats they pose to food security and livelihoods of tens of millions of people across continents, donors and international partners generously responded to the UN/FAO appeal <https://locust-hub-hqfao.hub.arcgis.com/>. Their responses have been instrumental in strengthening coordination, preparedness and assisting host countries intensify surveillance, monitoring, and control. It is critical that all frontline and invasion countries remain vigilant, and maintain surveillance, monitoring and timely control interventions. Development and humanitarian partners are encouraged to

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

maintain their generosity in reducing the impact of the locust invasions on food security and livelihoods of tens of millions of vulnerable peoples and communities amidst rapidly unfurling COVID-19 pandemic.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): Significant populations of immature adults were observed in Ikuu-Katavi plains, Tanzania. Community-Based NSE Groups detected concentrations of adult locusts in the northern edges of Lake Chilwa plains straddling Malawi and Mozambique. Significant populations are expected to be present in Dimba plains in Mozambique.

African Migratory Locust: *Locusta migratoria migratorioides* (**LMM**): LMM outbreaks were reported in Simalaha plains in Kazungula district in the Southern province in Zambia during the month of May 2020.

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

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

South American Locust, *Schistocerca cancellata* (**SCA**): SCA update was not received during the past months.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): DMA - hopper and bands developed in Afghanistan, Azerbaijan, Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan and CIT hatching and hopper and band formations began in Uzbekistan and expected have begun in Georgia, Kazakhstan, Russian Federation and probably Armenia. LMI is expected to have begun hatching in Uzbekistan, Kazakhstan and Russia Federation.

Fall Armyworm (*Spodoptera frugiperda*) (**FAW**): FAW was reported in Tanzania. It is likely that the pest was present elsewhere in maize and other cereal growing areas during this month.

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

Quelea spp. (QSP): QSP outbreaks were reported on Sorghum, Wheat, Rice and Millet in Mbeya, Singida, Morogoro and Manyara regions in Tanzania where aerial control was conducted by DLCO-EA in coordinated with MinAgri/PHS.

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): Dans la région centrale de l'épidémie (COR), la situation SGR est restée extrêmement grave en Afrique de l'Est où des populations importantes sont présentes et continuent de se développer en mai. Les opérations de lutte ont traité plus de 101,00 ha en grande partie en Éthiopie, au Kenya, en Somalie, en Arabie saoudite et en UAR. La reproduction se poursuit dans les plaines côtières du sud et de l'est et à l'intérieur du Yémen où les fortes pluies et les inondations du mois précédent ont créé des conditions favorables. Dans la région de l'épidémie orientale (EOR), des larves, des groupes d'ailés et des essaims des zones de reproduction printanière du sud de l'Iran et du Baloutchistan, de la vallée de l'Indus et du Punjab du Pakistan ont persisté pendant ce mois. Des essaims immatures de ces régions, arrivés au Rajasthan, en Inde plus tôt que d'habitude, avant les pluies de mousson, se sont propagés plus loin, certains atteignant les États du centre et du nord et déclenchant une alarme dans le pays. Les opérations de lutte ont traité plus de 231 200 ha en EOR au cours de ce mois. La région de l'épidémie de l'ouest (WOR) est restée calme et seule une reproduction locale a eu lieu en Algérie tandis que des adultes matures peuvent être présents dans le nord du Mali mais n'ont pas pu être confirmés en raison d'un accès limité. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Prévisions: Prévisions: Des opérations de lutte sont en cours en Afrique de l'Est, dans la péninsule arabique et en Asie du Sud-Ouest, mais les développements acridiens se poursuivront pendant la période de prévision. Des essaims d'Éthiopie, du Kenya et de Somalie envahiront probablement Djibouti, l'Érythrée, l'Ouganda, le Soudan du Sud et / ou le Soudan et ceux du Yémen traverseront probablement le golfe d'Aden et atteindront le nord-est de l'Éthiopie et l'est de la Somalie. Il est possible que des essaims du nord de l'Arabie saoudite arrivent également au Soudan. Les essaims qui arrivent au Soudan en provenance des pays voisins pourraient se propager vers l'ouest et atteindre WOR. Dans l'EOR, la reproduction estivale devrait s'intensifier des essaims qui sont arrivés et continuent d'arriver des parties de reproduction printanière de la région, aggravés par ceux du Yémen et de la Corne de l'Afrique et les populations locales. Dans WOR, la reproduction

peut commencer au début des pluies d'été. Compte tenu de la gravité des invasions acridiennes en cours et des menaces qu'elles représentent pour la sécurité alimentaire et les moyens de subsistance de dizaines de millions de personnes à travers les continents, les donateurs et les partenaires internationaux ont généreusement répondu à l'appel de l'ONU / FAO <https://locust-hub-hqfao.hub.arcgis.com/>. Leur réponse a contribué à renforcer la coordination, la préparation et à aider les pays hôtes à intensifier la surveillance, le suivi et le contrôle. Il est essentiel que tous les pays de première ligne et d'invasion restent vigilants et maintiennent des interventions de surveillance, de suivi et de contrôle en temps opportun. Les partenaires au développement et les partenaires humanitaires sont encouragés à maintenir leur générosité en réduisant l'impact des invasions acridiennes sur la sécurité alimentaire et les moyens de subsistance de dizaines de millions de personnes et de communautés vulnérables au milieu d'une pandémie de COVID-19 qui se propage rapidement. ONU / FAO <https://locust-hub-hqfao.hub.arcgis.com/>

Criquet nomade (*Nomadacris septemfasciata*) (NSE): Des populations importantes d'adultes immatures ont été observées dans les plaines d'Ikuu-Katavi, en Tanzanie. Des groupes NSE communautaires ont détecté des concentrations de criquets adultes dans les bords nord des plaines du lac Chilwa à cheval sur le Malawi et le Mozambique. Des populations importantes devraient être présentes dans les plaines de Dimba au Mozambique.

Criquet migrateur africain: *Locusta migratoria migratorioides* (LMM): Criquet migrateur africain: *Locusta migratoria migratorioides* (LMM): des foyers de LMM ont été signalés dans les plaines de Simalaha dans le district de Kazungula, dans la province méridionale de la Zambie, au cours du mois de mai 2020.

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

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): La mise à jour du SCA n'a pas été reçue au cours des derniers mois.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): DMA - trémie et bandes développées en Afghanistan, en Azerbaïdjan, au Kazakhstan, au Tadjikistan, au Turkménistan et en Ouzbékistan et des hachures de CIT et des formations de trémie et de bande ont commencé en Ouzbékistan et devraient avoir commencé en Géorgie, au Kazakhstan, en Fédération de Russie et

probablement en Arménie. L'IMT devrait avoir commencé à éclore en Ouzbékistan, au Kazakhstan et en Fédération de Russie.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*) (FAW): La FAW a été signalée en Tanzanie. Il est probable que l'organisme nuisible était présent ailleurs dans le maïs et dans d'autres régions céréalières au cours de ce mois.

Chenille Légionnaire africaine (AAW), *Spodoptera exempta*: aucune éclosion d'AAW n'a été signalée au cours de ce mois.

Quelea spp. oiseaux (QSP): Des foyers de QSP ont été signalés sur le sorgho, le blé, le riz et le millet dans les régions de Mbeya, Singida, Morogoro et Manyara en Tanzanie où le contrôle aérien a été effectué par DLCO-EA en coordination avec MinAgri / PHS

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.

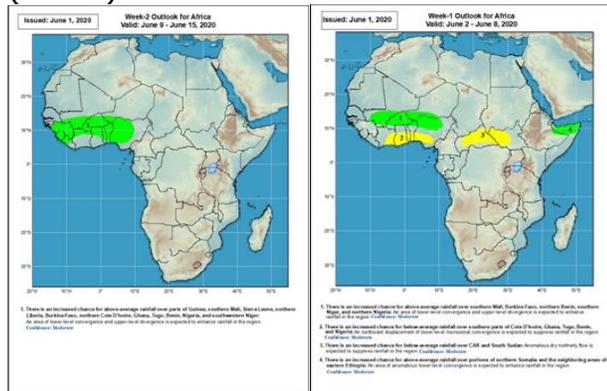
Weather and Ecological Conditions

In **COR**, rainfall was above-average over much of DRC, South Sudan, parts of eastern Sudan, Uganda, Eritrea, Ethiopia, parts western Kenya, central and northern Somalia, Burundi, local areas in

Tanzania during the past 30 days (NOAA). Rainfall was good in several place in South and West Kordofan, Blue Nile, in summer breeding areas in Sudan, several places in south, eastern and northern parts of Ethiopia, central Somalia light to moderate showers fell in northern part of the western lowlands in Eritrea, light showers were reported in Kenya; good rain fell in the northeastern Yemen between Thamud and the Oman border and the northwest extending to southwest Saudi Arabia during the 1st decad and throughout the entire southern coast during the 3rd decad. Rainfall was below-average in central and eastern Kenya, parts of southern Somalia during May (FAO-DLIS, LCC/Oman, NOAA, PPD/Ethiopia, PPD/Sudan).

Precipitation outlook for 2-8 June:

There is an increased chance for above-average rainfall over portions of northern Somalia and the neighboring areas of eastern Ethiopia. There is an increased chance for below-average rainfall over portions of CAR and South Sudan (NOAA).



NOAA 6/2020

In **EOR**, light showers fell in spring breeding areas in southeast Iran and southwest Pakistan during May causing ecological conditions to deteriorate and only patches of green vegetation persisted in those regions; heavy rains fell in Punjab and parts of the Indus Valley in Pakistan, but dry conditions persisted in summer breeding areas along both sides of the Indo-Pakistan border. Strong westerly wind from Cyclone Amphan (cyclone 1 in the northwestern Indian Ocean for the year) prevailed over northern India during the 3rd week of May forcing locusts to spread east and northwards (FAO-DLIS).

In **WOR**, during the past 30 days, rainfall was below-average over parts of southern Mali, Burkina Faso, local areas in Nigeria, and ecological conditions remained generally dry except in a few places in the Draa Valley, in irrigated areas in Algeria and a few places in Niger and Mauritania.

Precipitation Outlook: There is an increased chance for above-average rainfall over southern Mali, Burkina Faso, northern Benin, southern Niger, and northern Nigeria from 2-8 June. There is an increased chance for above-average rainfall over parts of Guinea, southern Mali, Sierra Leone, northern Liberia, Burkina Faso, northern Cote D'Ivoire, Ghana, Togo, Benin, Nigeria, and southwestern Niger from 9-15 June (NOAA, ANLA/Chad, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, CNLAP/Mali, FAO-DLIS).

Dry weather with vegetation drying prevailed near **NSE** primary outbreak areas except in a few places in Buzi-Gorongosa plains in Mozambique and Lake Chilwa plains in Malawi where flooding and high soil moisture levels continued to support green vegetation. (IRLCO-CSA)

CAC Region: Seasonal temperatures and above-normal precipitations occurred in most of the CA countries resulting in good vegetation cover in April which was carried over. In the Caucasus region, temperatures and precipitations were close to normal (FAO-PPPD).

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 serious in East Africa where 2nd generation breeding is underway in northwest **Kenya** and numerous hopper bands have formed that will give rise to immature swarms from the 2nd week of June until at least mid-July. A similar situation is underway in **Somalia** and **Ethiopia**. Control operations continue in all affected areas.

In **Ethiopia** swarms and hoppers were detected in several districts in eastern

and southeastern Oromia admin region (Dawe Serer districts) and Somali admin regions (Gode, Berhano, Elkere, Bare, Chereti East and West Emi, Kebrdhar Degahabur districts) and northern Somali admin region (Erer, Shinile, Adigala, Ayisha, Debe districts). In Afar admin region in northeastern Ethiopia, a few swarms that crossed from eastern Somali region laid eggs and hatching occurred in Dulecha, Dawe, Adaar, Chifira and Magale districts. Breeding also occurred in the eastern edge of the highlands, causing hopper bands to form. Breeding continues near Dire Dawa where hopper bands persisted, and adults have formed groups and swarms. All eyes must be on the above listed areas and neighboring areas of Somalia.

The situation in southern Oromia and SNNPR improved largely due to intensive aerial and ground control operations and coupled with the dispersal of swarms to eastern and northeastern parts of the country. Intensive survey operations continued by MinAgri and the Region Agri Bureaus in Afar, Oromia and Somali Admin Regions covered more than 105,108 ha. SGR was controlled on more than 57,058 ha during this month (FAO-DLIS, PPD/Ethiopia).

Scattered gregarious adults are present near the **South Sudan** border at a few places in Blue Nile, While Nile, and South Kordofan States in **Sudan**. A few adults persist in the Nile Valley north of Kordofan during this month. In **Eritrea**, no surveys were conducted during May, but a small swarm was reported in the southern part of the country bordering northern Ethiopia.

In **Djibouti**, surveys were not carried out and the situation remained calm during May (DLIO/Djibouti).

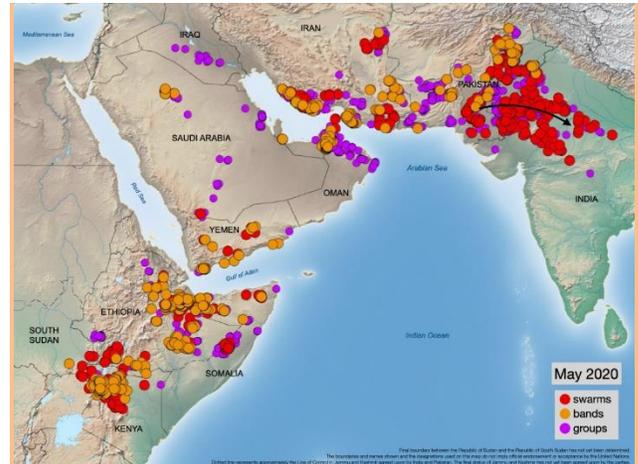
In **Somalia**, breeding is underway in central areas (Galkayo and Galmudug) where scattered adults and hopper groups are present. Breeding is also underway in the northwest where hopper bands and groups of immature and mature adults are present on the plateau (east of Burao to the west of Boroma) and the coast near Bulhar. Hopper groups are also present in the northeast near Garowe. Control operations using Novacrid – BP treated more than 10,245 ha during this month (FAO-DLIS)

In **Kenya**, ground and aerial control operations continued against hopper bands in the northwest (Turkana, Marsabit) and treated 18,737 ha. A few late-maturing swarms were seen south of Lodwar and new infestations were found along the Tana River where hopper bands are present. Most of swarms have laid or moved north and northwest and there were insignificant for control. As hopper bands have begun maturing, they will soon fledge and form groups and swarms (FAO-DLIS).

In **Uganda**, swarms arrived in Kapedo and Karenga districts in the northeastern parts of the country on 16 May and Kaabong and Kathile in Karenga district in Karamoja region on May 20. Control operation was conducted using a DLCO-EA aircraft and Sumithion 96% ULV (Fenitrothion). Swarms were controlled by air in Kapedo and Karenga and by ground means in Kaabong and Kathile. On May 26, at least one swarm was detected in the northeast district of Kaabong probably moving towards **South Sudan**.

In **South Sudan**, scattered adults were reportedly copulating northeast of Torit in Eastern Equatoria and hoppers and bands were present. A few mature swarms were seen southeast of Kapoeta near the

Kenya border on the 9th and later moved northeast to east Kapoeta where they were observed on 13 -15 May before crossing to Ethiopia (FAO-DLIS).



FAO-DLIS, 6/2020

In **Yemen**, limited survey was carried out on the Red Sea and Gulf of Aden coastal plains and the interior near Marib during the last week of May with financial support from the FAO office in Sana'a. Breeding continues on the southern and eastern coastal plains and the interior of the country between Marib and Hdhramout where ecological conditions were favorable due to heavy rains and floods from the previous month.

Widespread late instar hoppers and bands and several groups of immature adults were detected on coastal plains in Gulf of Aden area in Lahijj Gov, but control operations were not possible due to the presence of beekeeping. Lack of routine survey and control operations, favorable conditions and insecurity continued causing widespread breeding in the southern coast and the interior of the country. In **Oman**, several immature adult groups moved from the northern interior near the **UAE** border to the north coast where they are expected to move along the coast to Ras Al Hadd before crossing to southeast **Pakistan**. Other

groups moved from the interior breeding areas to Dubai.

Control operations continue against immature adult groups in northern **Oman** near **UAE**. In **Saudi Arabia**, ground and aerial control operations continued against immature adult groups in the northern region near Hail and Gassim, and against mature adult groups further south near Wadi Dawasir and Najran in the north and against mature adult groups in the south near **Yemen** border.

Forecast: Newly formed immature swarms from **Kenya** will migrate northwards to **Ethiopia** and northwest and arrive in **South Sudan** and later continue further north and reach summer breeding areas in the interior of **Sudan** after mid-June. Some swarms may also move to northern **Ethiopia** and swarms that reach northeast **Somalia** are likely to migrate across the Indian Ocean and reach summer breeding areas in the **Indo-Pakistan** border area. New swarms from current breeding will form from mid-June onwards, coinciding with the start of the harvest. Swarms that will form in the southern coast and the interior of **Yemen** will likely migrate to northern **Somalia** and northeast **Ethiopia** and others will migrate to summer breeding areas in the **Indo-Pakistan** borders in the coming months (DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Djibouti, PPD/Ethiopia, PPD/Sudan).

SGR - EOR: Swarms and immature adults from spring breeding areas in southwest **Pakistan** and southeast **Iran** reached Rajasthan, **India** in May, earlier than the monsoon rain, an unusual phenomenon. This and the westerly wind from Cyclone Amphan over the Bay of Bengal forced some swarms and

immature adult groups that reached Rajasthan to continue into northern states for the first time in nearly 60 years and some continued moving further east crossing the Rajasthan State borders reaching the central states of Madhya Pradesh and Maharashtra. As of 26 May, at least one swarm had reached northeast of Bhopal. Control operations continued in **India** (53,604 ha), **Iran** (101,138 ha), and **Pakistan** (76,466 ha) against hopper groups and bands as well as an increasing number of adult groups.



FAO-DLIS 6/2020

Forecast: As vegetation is drying out in spring breeding areas along the southern coast and parts of Sistan-Baluchistan in **Iran** and southwest (Baluchistan) and the Indus Valley (Punjab), **Pakistan** adults that are forming groups and small swarms will move to the summer breeding areas along the **Indo-Pakistan** from Cholistan to Tharparkar until at least early July. Several successive waves of invasions can be expected until July in Rajasthan with eastward surges across northern **India** as far as Bihar and Orissa followed by westward movements and a return to Rajasthan where successive waves of swarms will also arrive from southern **Iran** in June and the Horn of

Africa in July on the changing winds associated with the monsoon. These movements will cease as swarms begin to breed and become less mobile. It is less likely that swarms will reach south **India**, **Nepal**, or **Bangladesh** (FAO-DLIS).

SGR – WOR: The situation is currently calm and only a few insolated scattered adults were detected in **Algeria** and an unconfirmed indicated that mature adults were present in northern **Mali** where access is limited due to security reasons.

Forecast: Limited breeding is likely to commence in **Algeria** and there is a chance for swarms arriving in summer breeding areas in **Sudan** moving to eastern **Chad** around late June and spread further into Sahel West Africa ahead of the summer rains, reaching eastern **Niger** during the first week of July, eastern **Mali** in mid-July, southeast **Mauritania** in late July. (ANLA/Chad, CNLA/Mauritania, CNLAA/Morocco, CNLAP/Mali, 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): Ground survey by MinAgri detected significant populations of recently fledged adults in Ikuu-Katavi plains in Tanzania. Although surveillance has not been conducted in Malagarasi Basin, Rukwa Valley and Wembere plains, where favorable breeding conditions persisted during early months, moderate to high level infestations are expected to be present. In Malawi, Community-Based NSE

Groups detected NSE concentrations at the northern edges of Lake Chilwa plains straddling Malawi and Mozambique with the interior of the plains still flooded.

The situation in Buzi-Gorongosa plains in Mozambique remained calm whereas significant populations are expected to be present in Dimba plains. In Zambia, favorable breeding conditions prevailed in the Kafue Flats (IRLCO-CSA).

Forecast: With vegetation dry up and grass burning commencing, adult groups and populations will begin concentrating and forming swarms in patches of green vegetation. If left uncontrolled, the locusts will begin migrating to neighboring cropping areas.

IRLCO-CSA is planning to launch surveillance to assess locust populations and determine control measures. It is critical that NPPD collaborate with IRLCO-CSA in launching timely surveillance and control to avoid crop damage (IRLCO-CSA, OFDA/PSPM).

African Migratory Locust, *Locusta migratoria migratorioides* (LMM): LMM outbreaks were reported in Simalaha plains in Kazungula district in the Southern province in Zambia during the month of May 2020. Surveys by IRLCO-CSA detected low density swarms on some 3,900 ha and hopper bands over large areas inhabited by humans. The organization launched aerial spraying supplemented by ground control in areas with human settlements (IRLCO-CSA).

Tree Locusts, *Anacridium* spp. (ASP): No infestations were reported during this month.

Central American Locust - *Schistocerca piceifrons peceifrons*

(CAL): No update was received at the time this Bulletin was compiled.

South American Locust, *Schistocerca cancellata* (SAL): No update was received at the time this Bulletin was compiled.

***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): A late received report indicated DMA hopper and band development in Afghanistan, Azerbaijan, Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan. Dense hopper bands that were reported in the southern part of the CA region during April is expected to have continued. DMA hatching is expected to have begun in Russian Federation where fledging and mating will occur in the southern CA countries (FAO-PPPD).

CIT hatching and hopper developments occurred in Uzbekistan. Hatching and hopper formations are expected to have begun in Georgia, Kazakhstan, Russian Federation and probably in Armenia during this month. LMI hatching is expected to have begun in Uzbekistan, Kazakhstan and Russia Federation towards the end of May. Due to favorable conditions that began developing in the region earlier than usual, higher than normal locust populations are expected across the CAC region during this season (FAO-PPPD, OFDA/PMI).

Fall armyworm (FAW) was reported affecting irrigated maize in Malawi and Zimbabwe. The pest may also present in

other IRLCO-CSA member-countries, but at a much lower intensity given that maize crops had matured. Other maize growing regions across Africa, Asia, Pacific and elsewhere likely experienced FAW presence (DLCO-EA, IRLCO-CSA, OFDA/PSPM).

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. Dutta, 19/06/2019

REUTERS

Forecast: FAW will likely 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. Active monitoring, surveillance, reporting and preventive interventions remain critical to abate significant crop damage (OFDA).

Recent Event on FAW: The first meeting of the Technical Committee of the Global Action for Fall Armyworm Control was conducted on **May 18, 2020**. The Global Action for Fall Armyworm Control 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 Fall Armyworm at a global level. The three key objectives of the Global Action 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: 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, 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 established across 300 project villages in the six countries. Strong relationships and commitments have been established among experts, implementing partners and communities in participating countries to guarantee sustainability of project gains.

Scaling up of similar projects will ensure large number of farming communities in several affected countries across different regions to benefit and is worth considering.

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. 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 at different scales. It must be noted that highly hazardous pesticides cannot and must not be considered or used in FAW control. Safer, affordable, and adaptable IPM-based pest management remains crucial in abating FAW infestations to minimize crop damage. **End note.***

African Armyworm (AAW): AAW outbreaks were not reported during this month (IRLCO-CSA).

Forecast: AAW activities will likely remain calm in the primary outbreak areas 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=8ff7a2eefbee4783bfb36c3e784e29cb>
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 surveillance, monitoring and quarantine enforcement remain critical to prevent invasive pest species.

Quelea sp. (QSP): QSP bird outbreaks were reported damaging rice and sorghum in Morogoro region of Tanzania. Aerial control was launched by MinAgri/PHS and DLCO-EA in 16 villages. The pest was also detected in Kilimanjaro region in Tanzania, but survey and control were yet to be conducted. QSP was reported in Narok country in Kenya causing damage to wheat and sorghum and plans were underway by MinAgri/PPD at the time this Bulletin was compiled to launch control operations. In Zimbabwe QSP was reported in Pandamatenga in Matebeleland North province close to the Botswana border. The pest bred in the area and later migrated into Botswana and successfully controlled through close collaboration between the two countries (DLCO-EA, IRLCO-CSA).

Forecast: QSP is expected to cause damage to maturing small grain cereals

in Kenya and Tanzania and on irrigated wheat in Zimbabwe towards the end of the forecast period (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 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 any 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 and launch control interventions as needed. Regular crop scouting is critical to avoid damage /losses. Invasion countries should remain 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 sponsoring an operational research through Arizona State University to develop a tool 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 Africa regions 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 in communication with interested parties to explore means and ways to expand innovative technologies to countries affected by ETOP to help minimize their impacts on 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, that continued benefiting participating countries across the globe was halted due to lack of resources to maintain the system. FAO has agreed to search for resources and revive the PSMS 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

Inventory of Strategic SGR Pesticide Stocks significantly changed in all regions except in WOR; more than 332,000 ha were treated during May (Ethiopia = 57,058; Iran = 101,138, India = 53,604; Iraq = 101; Kenya = 18,737; Oman = 1,385, Pakistan = 76,466, Saudi Arabia = 9,015; Somalia = 10,245; UAR = 537; Uganda = ?

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~

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*
 AGRA *Agricultural Green Revolution in Africa*

AME	<i>Anacridium melanorhodon</i> (Tree Locust)	ELO	EMPRES Liaison Officers –
APLC	Australian Plague Locust Commission	EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
APLC	Australian Plague Locust Commission Bands groups of hoppers marching pretty much in the same direction	EOR	Eastern SGR Outbreak Region
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa	ETOP	Emergency Transboundary Outbreak Pest
CABI	Center for Agriculture and Biosciences International	Fledgling	immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed
CAC	Central Asia and the Caucasus	GM	GreenMuscle® (a fungal-based biopesticide)
CBAMFEW	Community-based armyworm monitoring, forecasting and early warning	ha	hectare (= 10,000 sq. meters, about 2.471 acres)
CERF	Central Emergency Response Fund	ICAPC	IGAD’s Climate Prediction and Application Center
CIT	<i>Calliptamus italicus</i> (Italian Locust)	IGAD	Intergovernmental Authority on Development (Horn of Africa)
CLCPRO	Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)	IRIN	Integrated Regional Information Networks
CNLA(A)	Centre National de Lutte Antiacridienne (National Locust Control Center)	IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa
COR	Central SGR Outbreak Region	ITCZ	Inter-Tropical Convergence Zone
CPD	Crop Protection Division	ITF	Inter-Tropical Convergence Front = ITCZ)
CRC	Commission for Controlling Desert Locust in the Central Region	FAO-DLIS	Food and Agriculture Organizations’ Desert Locust Information Service
CTE	<i>Chortoicetes terminifera</i> (Australian plague locust)	Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)
DDLC	Department of Desert Locust Control	JTWC	Joint Typhoon Warning Center
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)
		LPA	<i>Locustana pardalina</i>
		MoAFSC	Ministry of Agriculture, Food Security and Cooperatives

MoAI	Ministry of Agriculture and Irrigation	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.
MoARD	Ministry of Agriculture and Rural Development	UF	University of Florida
NALC	National Agency for Locust Control	USAID	the United States Agency for International Development
NCDLC	National Center for the Desert Locust Control, Libya	UN	the United Nations
NOAA (US)	National Oceanic and Aeronautic Administration	WOR	Western SGR Outbreak Region
NPS	National Park Services	ZEL	Zonocerus elegans, the elegant grasshopper
NSD	Republic of North Sudan	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
NSE	Nomadacris septemfasciata (Red Locust)		
OFDA	Office of U.S. Foreign Disaster Assistance		
PBB	Pine Bark Beetle (<i>Dendroctonus</i> 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	<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	<i>Schistocerca piceifrons piceiferons</i> (Central American Locust)		
SSD	Republic of South Sudan		
SPB	Southern Pine Beetle (<i>Dendroctonus frontalis</i>) – 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)		

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[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/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/>

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/>

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 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/>