

**Emergency Transboundary Outbreak Pests (ETOPs) Situation for July with a forecast through mid-September 2018**  
**résumé en français est inclus**

## SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**<sup>1</sup>) situation remained generally calm and only a few isolated adults were detected in a few places in western (WOR), central (COR) and eastern (EOR) outbreak regions during July.

**Forecast:** Small-scale breeding is likely in parts of the summer breeding areas in WOR, COR and EOR, but significant developments are not likely during the forecast period.

**Red (Nomadic) Locust** (*Nomadacris septemfasciata*) (**NSE**): NSE swarms were reported in Malawi and Mozambique during July. Swarms are expected to have begun forming in Tanzania and low density NSE populations may be present in Kafue Flats in Zambia and in Buzi-Gorongosa plains in Mozambique. *Timely surveillance and preventive control are critical to minimize crop damage.*

**Central American Locust**, *Schistocerca piceifrons piceiferons* (**CAL**): No update was received at the time this bulletin was compiled, but second generation CAL populations that were developing in the Yucatan Peninsula in México and León in Nicaragua during June likely continued in July.

**South American Locust**, *Schistocerca cancellata* (**SCA**): No update was received on SCA in July, but the situation may have remained generally calm in Argentina, Bolivia and Paraguay.

**Italian (CIT), Moroccan (DMA), and the Asian Migratory Locusts (LMI)**: DMA continued further developing in Central Asia and the Caucasus and will gradually disappear while CIT and LMI will continue developing during the forecast period. *Active surveillance and timely preventive interventions remain essential.*

**Fall Armyworm** (*Spodoptera frugiperda*) (**FAW**): FAW continued being a problem to maize and other cereal crops in eastern and central Africa during July. The pest was for the first time reported in Chikkaballapur, Karnataka districts in southern **India** in July. FAW was also reported in Mali during early July.

<sup>1</sup> Definitions of all acronyms can be found at the end of the report.

**African Armyworm (AAW) (*Spodoptera exempta*):** AAW outbreak was not reported in July, but it is likely that the pest is present in areas where ecological conditions are favorable in the Horn region.

**Southern Armyworm (*Spodoptera eridania*) (SAW),** a pest native to the Americas and common in southern USA to Argentina poses a threat to agriculture elsewhere. So far, the pest has not been detected in Africa on an outbreak scale, but if and when detected, this ravenous pest could become a heavy burden to small-holder farmers who are already struggling to fend off other major pests that are compromising their food security and economic well-being.

**Quelea birds (QQU):** QQU outbreaks were reported attacking small grain crops in **Kenya** and **Tanzania** and may be present in other countries during July.

*Active surveillance, monitoring, reporting and timely preventive interventions remain critical at all times to abate the threats ETOPs pose to crops and pasture.*

*USAID/OFDA/PSPM monitors ETOPs regularly 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, as well as Agency partners, and NGOs and provides timely analytical bulletins and reports to stakeholders across the globe. **End summary***

## RÉSUMÉ

**La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR)** est restée généralement calme et seuls quelques adultes isolés ont été détectés dans quelques endroits dans les régions de l'Ouest (WOR), du Centre (COR) et de l'Est (EOR) en juillet.

**Prévision:** Une reproduction à petite échelle est probable dans certaines parties de la reproduction estivale à WOR, COR et EOR, mais des développements significatifs ne sont pas probables pendant la période de prévision.

**Criquet nomade rouge (*Nomadacris septemfasciata*) (NSE):** Des essaims devraient avoir commencé à se former en Tanzanie et des populations NSE de faible densité pourraient être présentes dans les plaines de Kafue en Zambie et dans les plaines de Buzi-Gorongosa au Mozambique. Une surveillance en temps opportun et un contrôle préventif sont essentiels pour minimiser les dommages aux cultures.

**Criquet Amérique centrale, *Schistocerca piceifrons piceifrons* (CAL):** CAL / SPI: aucune mise à jour n'a été reçue au moment de la rédaction de ce bulletin, mais les

populations de deuxième génération qui se développaient dans la péninsule du Yucatan au Mexique et León au Nicaragua

**Criquet d'Amérique du Sud, *Schistocerca cancellata* (SCA):** Aucune mise à jour n'a été reçue concernant SCA en juillet, mais la situation est peut-être restée généralement calme en Argentine, en Bolivie et au Paraguay.

**Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI):** la DMA a continué à se développer en Asie centrale et dans le Caucase et disparaîtra progressivement tandis que CIT et LMI continueront à se développer pendant la période de prévision. Une surveillance active et des interventions préventives opportunes restent essentielles.

**Chenille Légionnaire d'automne (*Spodoptera frugiperda*) (FAW):** En juillet, le FAW a continué de poser problème au maïs et aux autres céréales en Afrique centrale et orientale. Le ravageur a été signalé pour la première fois dans les districts de Chikkaballapur, Karnataka, dans le sud de l'Inde, en juillet. FAW a également été signalé au Mali au début du mois de juillet.

**Chenille Légionnaire africaine (AAW) (*Spodoptera exempta*):** une épidémie d'AAW n'a pas été signalée en juillet, mais il est probable que le ravageur soit présent dans les zones où les conditions écologiques sont favorables dans la région de Horn.

**La chenille légionnaire du Sud (*Spodoptera eridania*) (SAW),** un ravageur originaire des Amériques et commune dans le sud des États-Unis à l'Argentine, constitue une menace pour l'agriculture dans d'autres régions. Jusqu'à présent, le ravageur n'a pas été détecté en Afrique à une échelle épidémique, mais s'il est détecté, ce ravageur vorace pourrait devenir un lourd fardeau pour les petits exploitants agricoles qui luttent déjà pour se défendre contre les principaux ravageurs. et bien-être économique.

**Quelea birds (QQU):** des épidémies de QQU ont été signalées et ont attaqué de petites cultures céréalières au Kenya et en Tanzanie et pourraient être présentes dans d'autres pays en juillet.

La surveillance active, la surveillance, les rapports et les interventions préventives opportunes restent critiques à tout moment pour réduire les menaces que les ETOP font peser sur les cultures et les pâturages.

**L'USAID / OFDA / PSPM** surveille régulièrement les ETOP en étroite collaboration avec son réseau de PPV / DPV nationaux, d'organismes de contrôle et / ou de lutte antiparasitaire régionaux et internationaux, y compris la FAO, la CLCPRO, CRC, DLCO-EA et IRLCO-CSA, ainsi que des partenaires de l'Agence et des ONG. et fournit des bulletins analytiques et des rapports opportuns aux parties prenantes à travers le monde. **Résumé de fin**

## OFDA's Contributions to ETOP Abatement Interventions

**USAID/OFDA** co-sponsored FAW disaster risk reduction project is being implemented by a consortium composed of the Center for Agriculture and Biosciences International (CABI), the Desert Locust Control Organization for Eastern Africa (DLCO-EA), International Center for Insect Physiology and Ecology (ICIPE) and National MinAgri and other partners and led by FAOSFE. The project has conducted national level ToTs and trained several dozen officers/staff in Tanzania, Ethiopia, Kenya and Rwanda, Uganda and Burundi and launched district level meetings for stakeholders involving more than 600 villages in 300 villages in 30 districts. The OFDA-BFS co-funded FAW Field manual:

[https://feedthefuture.gov/sites/FallArmyworm\\_IPM\\_Guide\\_forAfrica.pdf](https://feedthefuture.gov/sites/FallArmyworm_IPM_Guide_forAfrica.pdf) and FAO's FAW IPM Manual for FFS.

Pheromone traps have been issued to all participating countries and mobile phones have been distributed to some countries and will be distributed to others in due course. The mobile apparatus will utilize the monitoring and forecasting application that has been developed by FAO.

CABI (Nairobi) has drafted a field manual for community training on FAW. The Manual references to the USAID field FAW field guide, FAO's FAW manual, and other relevant sources. It focuses on district officers, extension staff and rural communities. The document which is under review for design layout format and audience-specific content validation is expected to be distributed soon for technical review.

*OFDA/PSPM is working with interested parties to explore means and ways to*

*expand innovative technologies to AAW affected countries to contribute to food security and benefit farmers and rural communities.*

*OFDA/PSPM's interests in sustainable pesticide risk reduction in low income countries to strengthen their capacities and help avoid potentially threatening pesticide related contaminations and improve safety of vulnerable populations and their shared environment remain high on the agenda.*

*The online Pesticide Stock Management System (PSMS) that was developed by the UN/FAO with financial assistance from USAID/OFDA and other partners continues benefiting participating countries across the globe. Thanks to this tool, ETOP-prone countries and others have been able to avoid unnecessary procurements and stockpiling of pesticides. This practice has significantly contributed to host-countries' ability to effectively minimize and avoid costly disposal operations and thereby improved safety and well-being of their citizens and their shared environment.*

*USAID/OFDA-sponsored DRR projects have been strengthening national and regional capacity for emergency locust control and prevention and helped tens of millions of farmers, pastoralists across Sahel West Africa, Northwest Africa, Eastern and Northeastern Africa, the Middle East and Caucasus and Central Asia (CAC).*

*These projects created, enhanced, and facilitated collaborations among neighboring countries for joint monitoring, surveillance, information sharing and technical support. The projects supported several dozen training on ETOP monitoring and control. Thanks to these and other similar efforts,*

potentially serious locust outbreaks and invasions had been abated several times in many countries across the primary outbreak regions for more than a decade

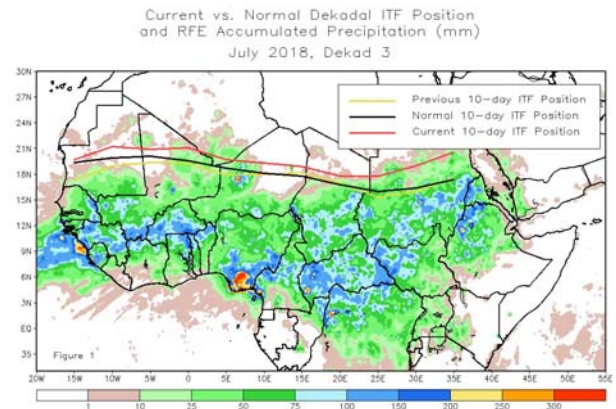
*The USAID/OFDA-FAO-DLCO-EA co-sponsored Horn of Africa emergency desert locust management project is progressing well. Technical and material supports that have been provided to participating frontline countries and DLCO-EA continue strengthening their capacity to better monitor, report, prevent, and abate locusts in the sub-region.*

**Note:** ETOP SITREPs can be accessed on USAID Pest and Pesticide Management website: [USAID Pest and Pesticide Monitoring](#)

### Weather and Ecological Conditions

From July 21-31, the ITF exhibited significant northward movement from its previous position during mid-July along its entire length. The mean western (10W-10E) portion of the ITF was approximated at 20.4N, located well to the north of the climatological normal position by 1.1 degrees. The persistent northward displacement of the ITF during recent dekads has led to ample moisture across the Sahel and moisture pushing well into the Sahara this week. The mean eastern (20E - 35E) portion of the ITF was approximated at 18.8N, far north of the previous dekad's position (16.5), and well-above the climatological mean position by 2.2 degrees. The abnormal placement of the ITF has led to heavy rains and flooding in Sudan. Figure 1 shows the current position of the ITF (red) relative to the mean climatological (black) position during the 3rd dekad of July and its previous (yellow) position during the 2nd dekad of July. Figures 2 and 3 are time series, illustrating the mean latitudinal values of the western

and eastern portion of the ITF, respectively, and their seasonal evolution compared to climatology since April, 2018 (NOAA).



From 11-20 July (2<sup>nd</sup> dekad of July), the Inter-Tropical Front (ITF) exhibited slight southward movement west of 5 degrees longitude, but elsewhere exhibited little movement from its previous position during early July. The mean western (10W-10E) portion of the ITF was approximated at 18.7N, located to the north of the climatological normal position by 0.2 degrees. The persistent northward displacement of the ITF during recent dekads has led to ample moisture across the Sahel so far this season. The mean eastern (20E - 35E) portion of the ITF was approximated at 16.5N, slightly north of the previous dekad's position, and above the climatological mean position by 0.4 degrees. Figure 1. The current position of the ITF (red) relative to the mean climatological position during the 3<sup>rd</sup> dekad of June (black) and its position during the 2<sup>nd</sup> dekad of July (yellow). Figures 2 and 3 show time series (red), illustrating the mean latitudinal values of the western (Figure 2) and eastern (Figure 3) portions of the ITF and their seasonal evolution compared to climatology since April, 2018 (black) (NOAA).

Figure 2.

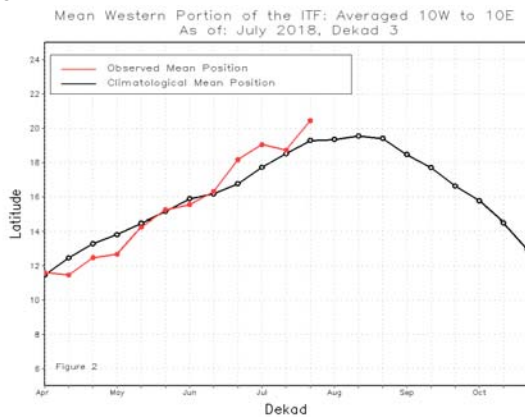
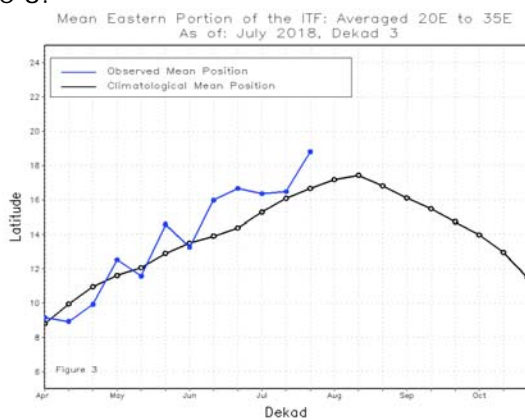
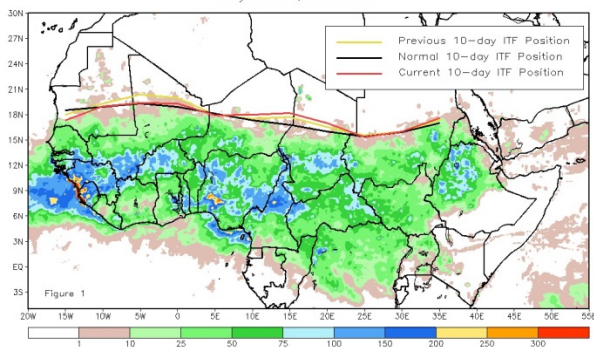


Figure 3.



Current vs. Normal Dekadal ITF Position and RFE Accumulated Precipitation (mm) July 2018, Dekad 2



**NSE Outbreak Regions:** Dry and cool weather prevailed in most NSE outbreak areas except in Mozambique where significant rains fell. Vegetation had dried in the outbreak areas in Tanzania and Malawi while it is gradually drying up in Mozambique and Zambia. Vegetation burning has been progressively reducing

NSE habitat forcing them to concentrate in patches of green vegetation (IRLCO-CSA, NOAA).

**In CAC,** warm weather with the temperature close to climatological normal prevailed during July. Rainfall was generally below multiyear average and natural vegetation continued to dry out.

**Note:** Combinations of precipitation, warm weather and green vegetation **MUST** be closely watched as this mix coupled with the seasonal wind trajectory can favor, breeding and facilitate migration and further spread of migratory pests. **End note.**

**Note:** Changes in the weather pattern and increased temperature can contribute to ecological shift in ETOP habitats and increase the risk of pest outbreaks, resurgence and emergence of new pests. 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 ambient altitude due to warmer higher elevations.

The **Asian migratory locust**, an insect that normally breeds once a year, has begun exhibiting two generations per year. These anomalies which are largely attributed to the change in the weather patterns and associated ecological shift are serious concerns to farmers, rangeland managers, crop protection experts, development and humanitarian partners, etc. Regular monitoring, documenting and reporting anomalous manifestations in pest behavior and on habitat shifts remain critical to help avoid/minimize potential damage to crops, pasture and livestock and reduce subsequent negative impacts on food security and livelihoods of vulnerable populations and communities.

[http://www.cpc.ncep.noaa.gov/products/international/casia/casia\\_hazard.pdf](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 – WOR:** A few isolated adults were detected in central and eastern **Algeria** and southern **Mauritania** and no locusts were reported in Libya, Chad, Mali, Morocco, Niger or Tunisia during July. Survey and monitoring teams are dispatched to the primary breeding areas in **Mauritania** and planned for next month in **Chad**. In **Mali** the ongoing security situation in the primary outbreak areas had forced CNLCP to liaise with national locust watch brigade and other resources persons for surveillance without too much risk to its field staff. CNLCP also maintained a standby surveillance and rapid response teams at Gao intervention base (INPV/Algeria ,ANLA/Chad, NLCC/Libya, CNLCP/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO/DLIS).

**Forecast:** Heavy and moderate rains that fell in several places in **WOR** will improve ecological conditions for locusts to survive and start breeding on a small-scale. Low numbers of adults and hoppers will likely appear in southern Mauritania, southwestern Mali, northern Mali, Niger and Chad, but significant developments are not likely and the situation will remain generally calm in **WOR** during the forecast period (INPV/Algeria, ANLA/Chad, NLCC/Libya, CNLCP/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO/DLIS, PSPM).

**SGR (Desert Locust) - COR:** Isolated adults were detected in July in summer breeding areas in the interior of **Sudan**, but no locusts were reported in Djibouti,

Eritrea, Ethiopia, Oman, Somalia, Yemen or Saudi Arabia during this month (DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

**Forecast:** Small-scale breeding is likely in summer breeding areas in the interior of **Sudan** and western **Eritrea**, southern **Oman**, and southern and eastern **Yemen**, and eastern **Saudi Arabia** where cyclone **Mekunu** caused heavy rain and floods during May. Limited breeding may also occur in northern **Somalia** and eastern **Ethiopia** where cyclone Sagar brought heavy rains, but overall, significant developments are not likely in COR during the forecast period (DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

**SGR - EOR:** The SGR situation remained calm in EOR during July and only isolated adults were detected along the Indo-Pakistan borders in Cholistan where heavy rainfall caused vegetation to develop (FAO-DLIS).

**Forecast:** Small-scale breeding is likely in areas of heavy rainfall along the Indo-Pakistan borders during the forecast period, but significant development is not expected.

*Active monitoring, timely reporting and preventive interventions remain critical to abate any major developments that could pose serious threats to crops and pasture in areas where locust activities are present.*

*The **USAID/OFDA-FAO-DLCO-EA** sponsored Horn of Africa emergency desert locust management project is in progressing. Technical and material supports that have been provided to participating frontline countries and/or DLCO-EA are strengthening the capacity*

*to better monitor, report, prevent, and abate locusts in the sub-region.*

**Red (Nomadic) Locust (NSE):** Joint survey by IRLCO and MinAgri/**Malawi** from 30 July on detected high density swarms (15-30 insects/m<sup>2</sup>) over some 1,500 ha (3,707 acres) in Mpatsanjoka Dambo, Salima District where they were threatening irrigated crops. Control operations were underway at the time this bulletin was compiled. Swarms that were reported in extensive areas in Lake Chilwa/L Chiuta plains require to be controlled.

In **Tanzania**, swarms are likely to have developed in the primary outbreak areas in Ikuu-Katavi, Malagarasi Basin and North Rukwa plains. Dry weather coupled with vegetation burning is expected to force further concentration and lead to more swarms.

In **Mozambique**, local communities in areas adjacent to Buzi-Gorongosa and Dimba plains reported low to medium density NSE populations. Heavy rains in July maintained green vegetation which will likely delay further concentrations. In **Zambia**, significant NSE populations and a grasshopper sp. were present in the Kafue Flats (IRLCO-CSA).

**Forecast:** Control operations that are in progress in Mpatsanjoka Dambo and will soon be extended to Lake Chilwa/Lake Chiuta plains are expected to significantly reduce NSE. In Tanzania where hot and dry conditions and enhanced grass burning will force locusts to aggregate and form swarms in Ikuu-Katavi, Malagarasi Basin and North Rukwa plains. If left unattended, swarms will move and threaten crops locally as well as beyond political borders as they know no borders nor need a visa that could affect food security in the region. In Buzi-Gorongosa

and Dimba plains in Mozambique and Kafue Flats in Zambia where swarms are likely to develop with the coming of extensive grass burning need routine surveillance and monitoring (IRLCO-CSA, OFDA/AELGA). As the weather gets drier and grass burning intensifies, vegetation will dry out and cause more swarms to form and pose threats.

*Given the significance of the NSE to food security and livelihoods of vulnerable populations, IRLCO-CSA continues appealing to its member-states to avail resource for early detection and timely control in the primary outbreak areas.*

### ***Schistocerca piceifrons piceifrons* –**

*No update was received on Central American Locust at the time this bulletin was compiled, but low to medium density populations that were detected in the Yucatan Peninsula in México and León in Nicaragua and later resulted in 2<sup>nd</sup> generation populations are expected to have continued appearing and developing during July. CAL/SPI is native to the tropical Central and South America and belongs to the same genus as SGR. CAL is native to the tropical Central and South America and belongs to the same genus as SGR.*



Adults (l) and hoppers ® of CAL/SPI, in Yucatan, Mexico (photo courtesy: Marion Poot, 2018)

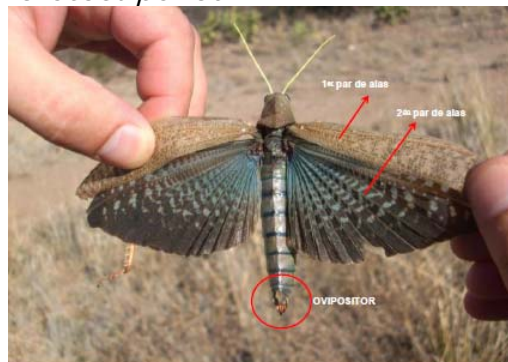


**Forecast:** Fledglings, maturation and mating is likely during the forecast period in the Yucatan Peninsula in **Mexico** and in León, **Nicaragua** during the forecast period.

**Note:** SPI (CAL belongs to the same genus as the Desert Locust and it is native to the Central and South America. It is an important pest in the tropical regions of the Americas. It is found in Belize, México, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panamá. The Pest is bi-voltine - has two generations per year. Outbreaks often occur in the Yucatán Peninsula every 4 years, probably this year the locust may appear in higher density due to favorable ecological conditions. National entities routinely monitor the pest. The Federal and State Governments coordinate with farmers to prevent increased population build ups. In addition, training and other supports are also provided through OIRSA – the Regional office of the International Organization for Animal and Plant Health (Mario Poot).

**South American Locust, *Schistocerca cancellata* (SCA):** No update was received on SCA in July, but the situation may have remained generally calm in Argentina, Bolivia and Paraguay. Surveillance and monitoring are regularly conducted by the national pest management entities, including SENASA (Argentina), SENASAG (Bolivia) and SENAIVE (Paraguay) as part of a regional pest management plan for the South American locust (Medina, SENASA). *SCA outbreaks are usually reported in Argentina, Bolivia, Paraguay during the summer/warmer seasons. Currently the SCA situation is relatively calm due to a potentially warmer winter season and it is likely that locust*

*populations will increase during the forecast period.*



Tucura quebrachera (*T. collaris*). Fuente: Programa Nacional de Acridios, 2012.

***Tropidacris collaris* (Tucura quebrachera - grasshopper-):** No update was received at the time this report was compiled, but is likely that hoppers and adults continued further developing in Santiago del Estero and Cordoba provinces in Argentina (see picture above from SENASA). The pest is known to cause serious damage to native flora, particularly shrubs and trees. SENASA executes control operations along roads and highways (Medina, SENASA).

**Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC):** No update was received in July, however a late received update for June indicated that DMA continued mating and laying eggs in most of the CAC countries through June, but in July all activities may have been slowed down as the DMA season in most places tapers off towards end of July into August. CIT hoppers are expected to have continued developing and fledging in Kazakhstan, Tajikistan and Uzbekistan during this month. LMI hoppers were reported developing in Kazakhstan and Uzbekistan and the pest began appearing in the Russian Federation. Since the beginning of the locust control campaigns in April, more than 3,000,000 ha of the

three locust species were reported treated in the CAC region (FAO-AGP).

**Forecast:** By mid-August, DMA will gradually disappear whereas both CIT and LMI will continue developing during August. CIT that started fledging in early July in the South will begin mating and laying eggs. Hatching and hopper formations will continue in the North during the forecast period. LMI will breed in large-scale and egg-laying will continue around the Aral Sea to be followed by fledging in early August in areas where flooding has receded.

**Tree locust: *Anacridium spp.*** outbreak continued in Turkana County in Kenya where control operations were in progress during the month (IRLCO-CSA).

#### **Fall armyworm (FAW) (*S. frugiperda*)**

FAW continued being a problem to rain-fed and irrigated maize and other cereal crops in several regions of Africa. In eastern Africa, the pest was reported attacking crops in Kenya, Uganda, Tanzania, South Sudan, and Ethiopia during July. It is likely that the pest is present in Burundi, DRC and Rwanda where updates were not available at the time this Bulletin was compiled.



A perfect biometrics image of FAW larva (File photo KSU)

In **Kenya**, FAW outbreaks were reported attacking early planted maize in Kericho,

Nyeri, Embu, Nakuru and Meru Counties. Survey operations continued to ascertain the situation FAW in other parts of the country.

In **Tanzania**, FAW was reported in the northern region where maize crops are attacked and control is being effected by the affected farmers with technical and material assistance from the MinAgri. Awareness raising by PHS continued (IRLCO-CSA, PHS/Tanzania).

In **Uganda**, FAW continued appearing in western and northeastern parts of the country, including Busoga and Karamoja where largely late planted maize crops were most affected. MinAgri provides technical and material assistance to affected farmers. OFDA co-funded project continued providing training to community focal points.

In **Ethiopia**, the pest was reported in hundreds of districts in seven administrative regions where hundreds of thousands of ha of maize crops have been reported affected (PPD/Ethiopia).

In **Somalia**, the pest was reported attacking sorghum and maize crops, but further details were not available at the time this bulleting was compiled (PPD/Somalia).

In **South Sudan**, the pest was reported affecting maize crops in regions in the Western, Central and Eastern Equatorial States where affected farmers are employing handpicking and in places like Yambio they are employing plant-based pesticide with a mixture of extracts of leaves of a common shrub weed, locally known as Babachico (*Chromolaena odorata* – common name *Siam weed*, *devil weed*, *triffid...*) and chili pepper. *C. odorata* contains carcinogenic alkaloids toxic to cattle and cause allergic

reactions. The plant is also known for its larvicidal chemical that can affect major mosquito vectors as well as fungicidal, nematocidal and other useful properties<sup>L</sup>  
[https://en.wikipedia.org/wiki/Chromolaena\\_odorata](https://en.wikipedia.org/wiki/Chromolaena_odorata)

In **Madagascar**, FAW which was first reported in March 2018, reached 14 regions by May and reported in 22 regions by June/July. A crude data from an assessment conducted by DPV estimates maize infestations at more than 53% with a yield loss of higher than 47% (a margin of error for both parameters exceeds 29%). DPV continued surveillance and monitoring and likely generate more info (DPV/Madagascar).

*In March 2018, FAO commissioned a field mission, the outcome of which contributed to the development of an emergency technical cooperation project (TCP) along with dialogue with GoM. The TCP project, worth USD 496,000, is aimed at developing national strategy, strengthening local capacity, improve communication and awareness raising among local communities through farmers field school modalities and other means and promoting and implementing sustainable control means, including, but not limited to biological, agro-ecological tools and other means for FAW control.*

In **Mali** FAW was detected in maize fields in July due to early summer rainfall.

**India:** For the first time, FAW was detected in Chikkaballapur district in Karnataka State in southern part of **India** during surveys conducted from 9-12 July, 2018 by India Council of Agricultural Research's National Bureau of Agricultural Insect Resources (ICAR-NBAIR) team. According to ICAR-NBAIR, in areas where the pest was detected on maize crops, the pest incidence was estimated at more than 70%. Molecular identification of the FAW populations that were collected from

Hassan, Belur and Shimoga regions of Karnataka exhibited 100% similarity with populations from Canada (GenBank: GU095403.1) and Costa Rica (GenBank JQ547900.1):  
[http://www.nbair.res.in/recent\\_events/Pest%20Alert%2030th%20July%202018-new1.pdf](http://www.nbair.res.in/recent_events/Pest%20Alert%2030th%20July%202018-new1.pdf) Further studies are underway on FAW in India (ICAR NBAIR).

**Forecast:** FAW will continue being a threat to irrigated and rain-fed maize and other crops across several regions in Africa during the forecast period. This is becoming more evident in countries with bimodal rainfall patterns and where uninterrupted irrigation systems allow continued presence of favorable ecological conditions for the pest to survive, breed and cause damage to crops.

The seasonal rainfall that started in the Sahel earlier than usual will likely create favorable conditions for the pest to further breed and attack crops. Early detection by PPD/DPV and community forecasters remains critical.

OFDA co-sponsored community-based FAW monitoring, forecasting and management project continued providing training to the national trainers and community focal points (CFP) in all six project countries. At the time this bulletin was compiled, more than 105 national trainers and close to 630 community focal persons had been trained through this project. By mid-August, additional 100 CFPs are expected to be trained (FAOSFE).

BFS has been leading FAW activities on the Agency side assisting affected countries across Africa. Among these are development of an IPM based FAW management guidance manual in collaboration with CIMMYT, etc.,

dissemination activities across various regions of Africa, developed FAW pest management guide for dozens of countries in collaboration with CABI. It has also developed audiovisual-based training/awareness raising tools for small-holder farmers in collaboration with SWABO, works closely with experts from different sectors, including, but not limited to academia, research centers, private sector, national entities, regional organizations, PIOs, etc. to help develop and avail safer, affordable effective and sustainable means of managing FAW and many more:

<https://fallarmywormtech.challenges.org/>

<https://feedthefuture.gov/lp/partnering-combat-fall-armyworm-africa>

*Active surveillance and timely reporting and interventions remain critical.*

*The need to develop safer and ecologically sustainable, economically sound and socially acceptable IPM based management interventions and assessment tools remain critical.*

FAOSFE is providing support to SSD and Somalia through country specific FAO Trust Fund projects and other means (Japan funded FAW project, etc.).

<https://reliefweb.int/report/uganda/uganda-food-security-outlook-update-october-2017-january-2018>

### **Additional info sources on FAW**

*Armyworm Network: A web resource for armyworm in Africa and their biological control:*

<http://www.lancaster.ac.uk/armyworm/>

*Latest African and Fall Armyworm Forecast from IRLCO-CSA - 5th Jul 2017:*

[http://www.lancaster.ac.uk/armyworm/forecasts/?article\\_id=002971](http://www.lancaster.ac.uk/armyworm/forecasts/?article_id=002971)

*Invasive Species Compendium Datasheets, maps, images, abstracts and full text on invasive species of the world:*  
<http://www.cabi.org/isc/datasheet/29810>

*Drought and armyworm threaten Africa's food security:*

<http://www.theeastafrican.co.ke/news/Drought-and-armyworm-threaten-Africa-food-security/2558-3996692-gqws8q/index.html>

<http://www.fao.org/food-chain-crisis/how-we-work/plant-protection/fallarmyworm/en/>

<https://fallarmywormtech.challenges.org/>

[http://www.fao.org/fileadmin/templates/fcc/map/map\\_of\\_affected\\_areas/Fall\\_Armyworm\\_brief\\_-\\_15Dec2017\\_.pdf](http://www.fao.org/fileadmin/templates/fcc/map/map_of_affected_areas/Fall_Armyworm_brief_-_15Dec2017_.pdf)

FAO Food Chain Crisis Early Warning Bulletin for January, 2018:

<http://www.fao.org/3/I8520EN/i8520en.PDF>

FAO FAWRisk-Map has been developed to provide information on the risk of household food insecurity due to FAW across Africa (see below)

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

**African Armyworm (AAW):** AAW season had ended in the southern and central outbreak regions. The pest may have been present in a few pockets in Ethiopia and perhaps South Sudan during July, but does not pose major threats. No reports were received from Sahel West Africa at the time this report bulletin was compiled.

**Forecast:** AAW may appear in northern Ethiopia, Eritrea and a few countries in Sahel West Africa during the forecast period, but no major developments are expected here or in other outbreak regions during the forecast period.

If and when required, trap operators are advised to actively monitor their traps. Trap monitoring and crop scouting are

encouraged for early detection and reporting on the presence of eggs, larvae and damage and help facilitate rapid interventions. Vigilance and timely appropriate preventive interventions remain critical to avoid major crop damage (OFDA/AELGA).

**Note:** USAID/OFDA has developed printable and web-based maps for AAW trap monitoring locations, for participating outbreak and invasion countries in the central region: <http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=8ff7a2eefbee4783bfb36c3e784e29cb>. A similar map is also being developed for the southern region: <http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=9d2ab2f918284595819836d1f16a526f> (click the links for the maps). OFDA/PSPM intends to develop a similar map for FAW (DDR project).

**Southern Armyworm (*Spodoptera eridania*) (SAW/SER).** A pest native to the Americas widely present from the southern parts of the US down to Argentina, the SAW is probably the most polyphagous of all armyworm species that belong to the Genus *Spodoptera*.



A mature SAW larva (caterpillar) (file photo UF)

SAW is known to feed on more than 200 species of plants in 58 families, mostly broadleaf, including, but not limited to cabbage, carrot, cassava, collard, cotton, cowpea, eggplant, okra, pepper, potato, soybean, sweet potato, tomato, and

watermelon (UF) (comparison: FAW has a host range of 80-100 plant species).

SAW is also known to feed on avocado, citrus, peanuts, sunflower, tobacco and varies flowers

[http://entnemdept.ufl.edu/creatures/veg/leaf/southern\\_armyworm.htm](http://entnemdept.ufl.edu/creatures/veg/leaf/southern_armyworm.htm).

SAW can produce multiple generations per year and completes its life cycle in 30-40 days. It is prolific and can produce 1,500-3,000 eggs under favorable temperature and host plant over its lifetime.



Foliar damage caused by SAW (file photo UF)

So far, SAW has not been detected in Africa on an outbreak scale, however, it is suspected to have been present in some parts of the continent. With more than 200 plant species on its menu, the presence of SAW on the African continent is certainly an additional serious threat to small-holder farmers who are already struggling to fend off other pests of major economic importance.

Control operations for SAW include natural enemies - parasitoids, predators, and pathogens; synthetic and biological pesticides, as well as botanical agents and other technologies. Given that the larvae of this pest are mostly external feeders, although they bore into fruits such as tomatoes, direct safer, effective and affordable pesticide application can be more effective on this pest than others that feed from inside plant parts.

**Quelea (QQU):** QQU roosts continued attacking rice, sorghum and wheat in Narok and Kisumu Counties in **Kenya**. Control was in progress at the time this bulletin was prepared. In Tanzania, QQU outbreak was controlled in Mbeya Region. In Zimbabwe QQU birds were reported in Chipinge district (Middle Sabi area) and survey operations are underway to determine control. QQU outbreaks were reported in other countries in the southern or central outbreak regions and no reports were received from the Horn and other outbreak regions at the time this bulletin was compiled (IRLCO-CSA, OFDA/AELGA).

**Forecast:** QQU outbreaks will likely continue being a problem to small grain cereal crops in **Kenya, Tanzania, Ethiopia** and **Zimbabwe** and other countries where small-grain cereals are grown (IRLCO-CSA, OFDA/AELGA).

**Facts:** QQU birds can travel ~100 km/day in search of food. An adult QQU bird can consume 3-5 grams of grain and destroy the same amount each day. A medium density QQU 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 on rodents during July, but the pest is a constant threat to field and storage crops.

**FACTS:** On average an adult rat can consume 3-5 gm of food (grains etc.)/day and a population of 200 rats/ha (a very low density) could consume what a sheep can eat in one day (not to mention the amount they can damage, destroy or pollute making it unfit for human consumption) and the zoonotic diseases they carry and transmit.

**All ETOP front-line countries must maintain regular monitoring and surveillance. During crop in-seasons, scouting must be implemented on a regular basis. Invasion countries should remain on alert. DLCO-EA, IRLCO-CSA, DLCCs, DLMCC, CNLAs, national DPVs and PPDs, ELOs are encouraged to continue sharing ETOP information with stakeholders as often as possible and on a timely basis. Lead farmers and community forecasters must remain vigilant and report ETOP detections to relevant authorities immediately.**

**Note:** A sustainable Pesticide Stewardship (SPS) can improve and strengthen 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 borders and geographic regions. **End note.**

**OFDA/PSPM** encourages the use of alternatives to hard core pesticides and at all times promotes IPM to minimize risks associated with pesticide stockpiling. A judiciously executed triangulation of surplus stocks from countries with large inventories to countries in need and where they can be effectively utilized is a win-win situation worth considering.

#### **Inventories of Pesticide Stocks for SGR Prevention and Control**

Inventory of national strategic stocks of SGR pesticides remained unchanged during July.

Table 1. Inventory of Strategic SGR Pesticide Stocks in Frontline Countries

Country	Quantity (l/kg)*
Algeria	1,188,099~
Chad	34,100
Egypt	68,070~ (18,300 ULV, 49,770 l)
Eritrea	17,122~ + 20,000 <sup>D</sup>
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000 <sup>D</sup>
Mali	5,000
Mauritania	14,998 <sup>DM</sup>
Morocco	3,490,732 <sup>D</sup>
Niger	75,750~
Oman	10,000~
S. Arabia	89,357~
Senegal	156,000~
Sudan	169,710~
Tunisia	68,514 obsolete
Yemen	40,090 <sup>D</sup> + 180 kg GM~

\* Includes different kinds of pesticide and formulations - ULV, EC and dust;

~ data may not be current;

<sup>D</sup> = Morocco donated 100,000 l of pesticides to Madagascar and 10,000 l to Mauritania in 2015

<sup>D</sup> = In 2013 Morocco donated 200,000 l to Madagascar

<sup>D</sup> = Saudi donated 10,000 to Yemen and pledged 20,000 l to Eritrea

<sup>DM</sup> = Morocco donated 30,000 l of pesticides to Mauritania

GM = *GreenMuscle*<sup>TM</sup> (fungal-based biological pesticide)

### 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 *Anacridium melanorhodon (Tree Locust)*

APLC *Australian Plague Locust Commission*

APLC *Australian Plague Locust Commission*  
*Bands groups of hoppers marching pretty much in the same direction*

ASARECA *Association for Strengthening Agricultural Research in Eastern and Central Africa*

CABI *Center for Agriculture and Biosciences International*

CAC *Central Asia and the Caucasus*

CBAMFEW *Community-based armyworm monitoring, forecasting and early warning*

CERF *Central Emergency Response Fund*

CIT *Calliptamus italicus (Italian Locust)*

CLCPRO *Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)*

CNLA(A) *Centre National de Lutte Antiacridienne (National Locust Control Center)*

COR *Central SGR Outbreak Region*

CPD *Crop Protection Division*

CRC *Commission for Controlling Desert Locust in the Central Region*

CTE *Chortoicetes terminifera (Australian plague locust)*

DDLC *Department of Desert Locust Control*

DLCO-EA *Desert Locust Control Organization for Eastern Africa*

DLMCC *Desert Locust Monitoring and Control Center, Yemen*

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

*SWAC South West Asia DL Commission*

*PBB Pine Bark Beetle*

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

*Triangulation The process whereby  
pesticides are donated by a  
country, with large inventories, but  
often no immediate need, to a  
country with immediate need with  
the help of a third party in the  
negotiation and shipments, etc.  
Usually FAO plays the third party  
role in the case of locust and other  
emergency pests.*

*UF University of Florida*

*USAID the United States Agency for  
International Development*

*UN the United Nations*

*WOR Western SGR Outbreak Region*

*ZEL Zonocerus elegans, the elegant  
grasshopper*

*ZVA Zonocerus variegatus, the  
variegated grasshopper, is  
emerging as a fairly new dry  
season pest, largely due to the  
destruction of its natural habitat  
through deforestation, land  
clearing, etc. for agricultural and  
other development efforts and due  
to climate anomalies*

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For dated, archived ETOP SITREPs,  
please, got to:

<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>

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