

**Emergency Transboundary
Outbreak Pest (ETOP) Situation
Update for November, 2016 with a
Forecast till mid-January, 2017**
[Un résumé en français est inclus](#)

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹) continued appearing in November in the Western Outbreak Region (WOR) where some 8,000 ha in total were treated in **Mauritania, Morocco, Algeria** and **Niger** during this month. Mauritania treated 7,379 ha during this month.

In the Central Outbreak Region (COR) locusts were reported along the Red Sea coasts in **Sudan, Eritrea** and **Yemen** and control operations treated 1,690 ha in total in three countries during November.

The situation in the Eastern Outbreak Region (EOR) remained calm during November.

Forecast

Locust numbers will likely increase in northern **Mauritania** and adjacent areas in southern **Morocco**, but the situation will remain clam in other countries in the region during the forecast period. Breeding will likely continue along the Red Sea coasts and Gulf of Aden and increase locust numbers, but major developments are

not expected during the forecast periods. EOR will remain fairly clam during the forecast period.

Active surveillance and timely preventive interventions remain critical to abate any major threats in areas where locust activities persist.

The commitments of national authorities coupled with support from regional and international partners and donors, e.g., USAID, FAC, FAO, AFDB, etc., frontline countries in WOR, i.e., enabled Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia, and a number of countries in COR to establish fully operational national locust management units responsible for migratory pest control. As a result, a number of front-line countries were able to thwart many potentially serious locust threats in 2012, 2015, 2016, etc. Technical and material support and coordination from CLCPRO, CRC, DLCO-EA, EMPRES programs, FAO/ECLO and assistance from USAID's cooperative agreement with FAO have proven absolutely valuable.

Red (Nomadic) Locust (NSE):

Significant NSE populations were detected in **Malawi** and breeding is expected to have commenced in primary outbreak areas in **Tanzania, Zambia** and **Mozambique** where good rains fell during November.

Forecast: Large-scale breeding will likely cause outbreaks in **Tanzania,**

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

Zambia, Malawi and Mozambique during the forecast period.

Preventive interventions remain critical to avert any threats that the pest poses to food security and livelihoods of vulnerable populations.

Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts:

The locust threat has ended in Central Asia and the Caucasus (CAC) regions and the situation will remain calm until next spring.

Tree locust (*Anacridium spp*):

Tree locust species that was reported in October in Turkana County, **Kenya** persisted and preparation for control operations are underway.

African Armyworm (AAW): No AAW outbreaks were reported, but the seasonal rains that trigger AAW developments have commenced in most of the frontline countries in the eastern and southern AAW regions.

Quelea (QQU): QQU outbreaks were reported in several places in **Kenya**, northern **Tanzania**, **Ethiopia** and **Uganda** during November.

USAID/OFDA's Senior Adviser for pest and pesticide management participated in a project inception meeting and observed master trainers training (M-ToT) on emergency locust operations in Entebbe, Uganda from October 28 to November 10. He also attended the final annual technical meeting of the USAID/OFDA co-

funded regional locust project in Caucasus and Central Asia regions in Astana, Kazakhstan from 11-18 November, 2016.

During the project inception meeting and M-ToT events of the emergency locust prevention and control project for the Horn of Africa, OFDA Adviser noted organizer's capability and witnessed participants' enthusiasm and keen interests. The project is being co-funded by OFDA, FAO and DLCO. The primary aim of the project is to strengthen national and regional capacity for better management of emergency locust control and preventive interventions in the sub-region. The Horn of Africa sub-region harbors key areas where the desert locust breeds during winter, spring and summer seasons in COR.

All in all, the Adviser was pleased with the inception meeting and the training. The commitments demonstrated by DLCO and FAO staff as well as the participants who will be crucial for the implementation of the project. The Adviser underscored the importance of maintaining such dedication and commitments throughout the life of the project for better success and sustainability.

During his trip to Astana, where he attended the final regional technical meeting of the CAC locust project the Adviser noted the deep and candid discussions that spanned through the project inception in 2011.

The status of the milestones that were set during the course of the inception year was discussed along with key constraints identified and remedial actions taken. Overall the project has delivered commendable results in different countries and at various levels. A few of the achievements were a reflection of each country's technical, material and human capacity to effectively absorb what the project offered.

The Adviser noted a number of important milestones that were accomplished over the past five plus years with a modest funding from OFDA and other partners in an area as vast as this, covering ten countries.

There was a consensus among participating countries that the support provided by USAID and FAO and others through the locust project significantly improved their technical and material capacity to monitor, report and control locusts. They were grateful for being exposed to new technologies such as ultralow volume sprayers, GIS based locust survey and reporting, technics for human health and environmental protection monitoring during and post-locust operations and many more. There was a general consensus that the project played a major role in bringing closer together countries that were once at odds and helping them to share technical information and conduct joint cross border locust surveillance and control interventions.

The Adviser also noted that FAO and participating countries expressed commitments that the core activities will continue beyond OFDA funding that will end by April, 2017. To this effect, FAO is spearheading discussions with participating countries to develop a concept note and circulate to explore means and ways to capitalize the results that have been achieved over the past five plus years. It is believed that this will help maintain sustainability of the outcome of the project and maximize the positive impacts it has made in the region and at the national level in abating the threats locusts pose to more than 20 million plus farmers, herders in the CAC regions over 25 million hectares.

USAID/OFDA/PSPM monitors ETOPs closely through its network with national PPDs/DPVs, Migratory Pest Units and international and regional organizations, including FAO, CLCPRO, CRC, DLCO-EA, IRLCO-CSA and provides timely updates and advices to HQ, field staff, partners and others as often as necessary. **End summary**

RÉSUMÉ

Le criquet pèlerin (*Schistoseca gregaria* – SGR): Le criquet pèlerin (*Schistoseca gregaria* - SGR) a continué de paraître en novembre dans la Région de l'épidémie de l'Ouest où 10 654 ha ont été traités en Mauritanie, au Maroc, en Algérie et au Niger pendant ce mois. La

Mauritanie a traité 10.107 ha durant ce mois.

Dans la région de l'épidémie centrale, des criquets ont été signalés le long des côtes de la mer Rouge au Soudan, en Erythrée et au Yémen et les opérations de lutte ont traité 1 690 ha au total dans trois pays en novembre.

La situation dans la Région de l'épidémie orientale (EOR) est demeurée calme en novembre.

Prévoir

Le nombre de criquets augmente probablement dans le nord de la Mauritanie et dans les zones adjacentes au sud du Maroc, mais la situation restera dans d'autres pays de la région pendant la période de prévision. L'élevage se poursuivra vraisemblablement le long des côtes de la mer Rouge et du golfe d'Aden et augmentera le nombre de criquets, mais des évolutions majeures ne sont pas attendues pendant les périodes de prévision. L'EOR restera assez palourde pendant la période de prévision.

Une surveillance active et des interventions préventives opportunes demeurent essentielles pour réduire les menaces majeures dans les zones où les activités acridiennes sont présentes.

Grâce aux efforts et aux engagements des entités nationales et à l'appui des partenaires régionaux et

internationaux et des bailleurs de fonds, par exemple l'USAID, la FAO, la BAD, etc., Le Maroc, le Niger, le Sénégal et la Tunisie, et plusieurs pays du COR disposent d'entités nationales de gestion des acridiens pleinement opérationnelles ou d'unités de lutte contre les ravageurs migrants. Cela a permis à un certain nombre de pays de contrecarrer les menaces potentiellement graves pour les acridiens, comme les urgences acridiennes 2012 et 2015 ainsi que les menaces acridiennes en 2016. La coordination et les appuis techniques et matériels de CLCPRO, CRC, EMPRES, FAO / ECLO et L'accord de coopération de l'USAID avec la FAO s'est avéré absolument précieux.

Locust (NSE) rouge: Des populations de NSE significatives ont été détectées à Mpatsanjoka Dambo au Malawi et l'élevage devrait commencer dans les zones de reproduction primaires en Tanzanie, en Zambie et au Mozambique où de bonnes pluies sont tombées en novembre.

Prévisions: L'élevage à grande échelle causera probablement des éclosions en Tanzanie, en Zambie, au Malawi et au Mozambique pendant la période de prévision.

Les interventions préventives restent essentielles pour éviter toute menace que l'organisme nuisible pose à la sécurité alimentaire et aux moyens de subsistance des populations vulnérables.

(CIT), Marocain (DMA), Migrations asiatiques (LMI): La situation acridienne s'est terminée en Asie centrale et dans les régions du Caucase (CAC) et la situation restera calme jusqu'au printemps prochain.

Criquet arbre (Anacridium spp): Les espèces acridiennes qui ont été signalées en octobre dans le comté de Turkana au Kenya ont persisté et la préparation était en cours pour lancer des opérations de lutte.

Cheille Légionnaire (AAW): Aucun foyer d'AAW n'a été signalé, mais les pluies saisonnières qui déclenchent les développements de AAW ont commencé dans la plupart des pays de première ligne.

Quelea (QQU): Des éclosions de QQU ont été signalées en novembre dans plusieurs pays du Kenya, du nord de la Tanzanie, de l'Ethiopie et de l'est de l'Ouganda.

Le conseiller principal de l'USAID / OFDA en matière de lutte contre les ravageurs et les pesticides a participé à la réunion initiale du projet et à la formation des formateurs-maîtres observés à Entebbe (Ouganda) du 28 octobre au 10 novembre. Il a également assisté à la dernière réunion technique annuelle du projet régional de lutte antiacridienne USAID / Pour les régions du Caucase et d'Asie centrale à Astana, Kazakhstan du 11 au 19 novembre 2016.

Lors de son voyage à la réunion de lancement du projet et aux formations

des formateurs, le conseiller de l'OFDA a pris note de la capacité de l'organisateur et a été témoin de l'enthousiasme et des intérêts des participants dans le projet de prévention et de lutte antiacridienne d'urgence pour la Corne de l'Afrique. Le projet est cofinancé par l'OFDA, la FAO et la DLCO.

L'objectif principal du projet est de renforcer les capacités nationales et régionales pour une meilleure gestion des mesures de lutte contre le criquet pèlerin et des interventions préventives dans la sous-région qui abrite les principales zones d'épidémies de criquets au CR. Dans l'ensemble, le conseiller a été satisfait de la façon dont la réunion initiale et la formation ont été organisées et menées. Il a été témoin du dévouement et des engagements démontrés par le DLCO et le personnel de la FAO ainsi que par les participants qui joueront un rôle clé dans la mise en œuvre du projet. Il a encouragé tous les participants à maintenir le dévouement et les engagements par le succès du projet et au-delà.

Lors de son voyage à Astana, où il a assisté à la dernière réunion technique régionale du projet acridien CAC, le conseiller a pris note des discussions sur des questions qui remontent au début du projet en 2011.

Le statut des jalons qui ont été fixés au cours de la première année a été discuté, ainsi que les principales

contraintes identifiées et les mesures correctives prises. Dans l'ensemble, le projet a donné des résultats louables dans différents pays et à différents niveaux. Quelques-unes des réalisations reflétaient la capacité technique, matérielle et humaine de chaque pays à absorber efficacement ce que le projet offrait.

Le conseiller a noté un certain nombre de jalons importants qui ont été accomplis au cours des cinq dernières années dans une région aussi vaste qui couvre dix pays avec un financement modeste de l'OFDA et d'autres partenaires.

Les participants se sont accordés à penser que le soutien fourni par l'USAID, la FAO et la Turquie grâce au projet acridiens améliorerait considérablement leur capacité technique et matérielle de surveillance, de signalement et de lutte contre les acridiens. Les participants étaient reconnaissants à tous les participants d'être exposés à de nouvelles technologies telles que les pulvérisateurs de volume ultralow, l'enquête et la production de rapports sur les acridiens et beaucoup d'autres. Un consensus s'est dégagé sur le fait que le projet a joué un rôle clé en rapprochant les pays qui étaient autrefois en désaccord et en les aidant à échanger des informations techniques et à mener des interventions conjointes transfrontalières de surveillance et de lutte contre les acridiens.

Le Conseiller a également noté que la FAO et les pays participants ont déclaré que les activités clés se poursuivraient au-delà du financement de l'OFDA qui prendra fin d'ici avril 2017. À cet effet, la FAO mène des discussions avec les pays participants pour élaborer une note conceptuelle et Pour tirer parti des résultats obtenus au cours des cinq dernières années. Cela visera à maintenir la durabilité des résultats du projet et à maximiser les effets positifs qu'elle a faits aux niveaux régional et national pour réduire les menaces que posent les criquets à plus de 20 millions d'agriculteurs, les éleveurs des régions de l'ACC répartis sur 25 millions Hectares.

USAID / OFDA / PSPM surveille ETOPS de près grâce à son réseau avec PPDs / DPV, unités ravageurs migrants et les organisations internationales et régionales, y compris la FAO, la CLCPRO, CRC, DLCO-EA, IRLCO-CSA. Il fournit des mises à jour en temps opportun et de conseils à l'AC, le personnel de terrain, les partenaires et les autres aussi souvent que nécessaire. Résumé de fin

OFDA's Contributions to ETOP Activities

The online Pesticide Stock Management System (PSMS) that was developed with financial assistance from USAID/OFDA and other partners has been installed in some 65 countries around the globe and is helping participating countries maintain inventories. Thanks to this tool many

counties have been able to avoid unnecessary procurements and stockpiling of pesticides and helping them avoid costly disposal operations and improve safety and well-being of their citizens and shared environment.

The USAID/OFDA funded community-based armyworm monitoring, forecasting and early warning (CBAMFEW) project that was concluded last September has been incorporated in the annual work plan of the national crop protection departments in all participating countries <http://bit.ly/1C782Mk>. The project enabled farmers to be able to detect and report AAW and prevent major crop/pasture damage. Participating countries continue expressing their gratitude for having the project implemented in their countries. USAID/OFDA/PSPM will maintain a line of communication with participating countries and monitor progresses.

OFDA/PSPM is working with other partners to explore means and ways to expand this innovative technology to other AAW affected countries 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 improve safety of vulnerable populations and shared environment continued. It intends to expand this initiative to other parts of Africa, the Middle East, CAC, etc., as needed. OFDA continued its support for DRR programs to strengthen national and regional capacities for ETOP operations. The program which is implemented through FAO has assisted several frontline countries to mitigate, prevent, and respond to ETOP outbreaks. It has

helped participating countries avoid from misuse and mishandling of pesticides, pesticide-incorporated materials and application platforms.

USAID/OFDA is sponsoring project activities through the UN/FAO to help strengthen/re-build national and regional capacity to prevent and control the threats the locusts pose to the 25 million plus vulnerable people that eke a living from agriculture and livestock in CAC.

The program is on track and it has enabled collaboration among neighboring countries where joint monitoring, surveillance, reporting and preventive interventions have been realized to minimize the threats of ETOPs to food security and livelihoods of vulnerable population. Through this project, a number of technical staff from **Sahel West Africa, Northwest Africa, Eastern and Northeastern Africa, CAC, and the Middle East** continue receiving training in several fields, including Health Safety and Environmental Monitoring as related to ETOP operations and many more. During the first dekad of September, 2016, several technical staff from **Sahel West Africa and North Africa** received training on Health Safety and Environmental Monitoring in **Morocco**.

Note: ETOP SITREPs can be accessed on USAID Pest and Pesticide Management website: [USAID/OFDA PPM Website](#)

Weather and Ecological Conditions

Western Outbreak region: Ecological conditions were favorable in winter breeding areas in western Africa where good rains fell during October in western **Mauritania** and southern **Morocco**. Light

to moderate rainfall was reported in November in the western part of the country bordering northern Mali showers. Other countries remained fairly dry during this period.

Central Outbreak Region: Light to moderate rains were reported in the northern and southern Red Sea coastal areas in **Sudan, Eritrea** and southeast **Egypt**. In **Yemen**, ecological conditions remained favorable and vegetation was green and soil was moist in northern and southern part of Tehama. Dry vegetation and soil were reported in most of the coastal plains in Aden of Gulf during this month.

Eastern Outbreak Region: The EOR remained mostly dry and only light showers were reported in the highlands in southeast Iran.

NSE Outbreak Region

Seasonal rains commenced by mid-November in many NSE outbreak areas causing ecological conditions to become favorable for locusts to develop and begin breeding in the coming months. Malagarasi Basin in **Tanzania** reported 174 mm and Kafue flats in **Zambia** recorded 113 mm during November. Other locations in **Tanzania** and **Mozambique** received 22 to 62 mm respectively, during this month.

In CAC, dry and cold weather prevailed in most of the locust breeding areas during October.

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

Note: *Changes in the weather pattern and the rise in 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 normal ambient altitude due to warmer higher elevations.

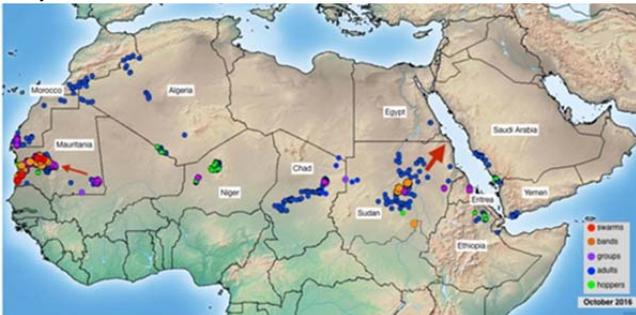
*The **Pine Bark Beetle** has been escalating in the western hemisphere due to the rise in winter temperatures and decreased precipitation. Warmer weather means lesser egg/grub death from severe cold temperatures and less precipitation means weaker trees that succumb to the beetle attack.*

*The **Asian migratory locust**, an insect that bred just once a year, recently began exhibiting two generations per year. These anomalous manifestations and phenomena, which are largely attributed to the change in the weather pattern and associated ecological shift, are a serious concern to farmers, rangeland managers, crop protection experts, development and humanitarian partners and others. Regular monitoring, documenting and reporting anomalous manifestations in pest behavior and habitat remain critical to help avoid and minimize potential damages to crops, pasture and livestock and reduce subsequent negative impacts on food security and livelihoods of vulnerable populations and communities. **End note.***

Detailed Accounts of ETOP Situation and Forecast for the Next Six Weeks

SGR – Western Outbreak Region: In **Mauritania** outbreaks persisted over large areas in most wadis in Inchiri and

Adrar in the western part of the country over vast areas covering some 60,000 sq km stretching from Nouakchott to Atar. Locusts persisted in Adrar and Inchiri levels where survey and control teams continue detecting populations of late instar hoppers and groups and small swarms of immature adults. During November CNLA/**Mauritania** treated 7,379 ha (2,145 ha during the last dekad of the month. As of September, 2016, the country has treated more than 15,983 ha).



SGR situation in November, FAO-DLIS

In **Morocco**, immature and mature adults and hoppers were detected and controlled on 75 ha in the south during this month. Groups of immature and mature adults and hoppers were reported in northern **Mali** during the first dekad of the month. Additional information was unavailable due to the ongoing insecurity situation. In **Niger**, small-scale breeding cause groups and hoppers to form in Tamesna Plains and control operations treated 50 ha during this month. Immature and mature adults were reported in western **Algeria** near Adrar in the central Sahara part of the country. Breeding was reported in the south near northern **Mali** where late instar hoppers and mature adults were detected. Control operation treated some 422 ha near Adrar and Timeiaouine during this month. In Tunisia the SGR situation remained generally calm in November and only a few solitary individuals were reported in Tozeur,

Gafsa and Kebili in areas neighboring Algeria. Other countries remained calm during this month (CNLA/Mauritania, CNLAA/Morocco, CNLA/Chad, CNLA/Tunisia, FAO-DLIS, NLLC/Libya).

Forecast: In **Mauritania**, the presence of hopper bands and immature adults over large areas coupled with favorable ecological conditions in Inchiri and Adrar and as more locusts will move to the north and northwest parts of the country and begin further developing provided warmer weather persists, *it becomes imperative to implement active surveillance and timely control during the coming months.* It is likely that the outbreaks in northern **Mauritania** will extend to southern **Morocco** where breeding and limited control operations are in progress. In **Algeria**, adult locusts will move from the south to the north. In **Mali** and **Niger** locusts will likely persist during the forecast period, but major developments are not expected and overall the SGR situation will likely remain calm in other parts of WOR (CNLA/Mauritania, CNLAA/Morocco, FAO-DLIS, NALC/Chad, NLCC/Libya).

SGR (Desert Locust) - Central

Outbreak Region: SGR continued developing in November in the central Red sea coast in **Eritrea** where gregarious hoppers and immature adults were detected south of Shib. Survey and control operations were intensified and ground control treated close to 850 ha November. In **Sudan** survey operations continued through the last week of November and covered Red Sea and River Nile states. The outbreaks that were reported during previous month in summer breeding areas in North Kordofan and Khartoum States subsided. Some scattered, mature solitary adults

were detected south of Suwakin in areas bordering **Eritrea** and far north, west of the Red Sea hills. Low density solitary hoppers were detected in Toker Delta. Aerial control operations treated some 800 ha in Kassala State during November. Low numbers of adults were also detected between southeastern **Egypt** and northern coast of **Sudan** during this month.



A farmer in the eastern part of Ethiopia trying to fend off a locust swarm with no hope to save his crop (file photo: FAO, 2014)

In **Yemen**, SGR continued developing in November in winter breeding areas along Tehama coastal plains where various instar hoppers and bands were detected between Al Zuhrah and Suq Abs. Adult locusts were also detected in several locations between Bayt Al Faqih and Suq Abs. Control operations by local farmers treated 40 ha in wadi Hairan with ULV sprayers. The situation along Gulf of Aden remained calm and only low density scattered solitary mature adults were detected in about 20 locations and scattered solitary hopper were observed in two locations in Mashoor. No locusts were reported in Djibouti, Ethiopia, Somalia, Oman or Saudi Arabia during this month (DLCO-EA, DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Eritrea, PPD/Sudan).

Forecast: Egg laying and breeding are expected to commence during November in areas where favorable ecological persisted and precipitation occurred. Regular monitoring and reporting remain essential during the forecast period.

SGR - Eastern Outbreak Region: The SGR situation in the EOR remained calm during November (DPPQS/India, FAO-DLIS).

Forecast: The EOR will remain calm during the forecast period.

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 (DLCO-EA, DLMCC/Yemen, DPPQS/India, FAO-DLIS, LCC/Oman, OFDA/AELGA, PPD/Sudan).

Red (Nomadic) Locust (NSE): NSE continued developing in the southern outbreak region. In **Malawi**, aerial survey by IRLCO-CSA and MoA detected significant populations (8-30 locusts/m²) of NSE in Mpatsanjoka Dambo, a non-primary outbreak area in November and control operations treated 950 ha during this month with financial assistance by the FAO/Malawi. NSE populations (with 3 to 8 locusts/m²) were also detected over vast areas in Lake Chilwa/Lake Chiuta plains. These locusts are expected to begin breeding as the seasonal rain commended towards the last dekad of November.

In **Tanzania**, medium density NSE swarms (5-15 locusts/m²) that were reported on estimated 12,000 ha in the Malagarasi Basin were expected to have persisted through November and will

likely cause breed on a large-scale. Ikuu-Katavi plains may witness significant breeding. Lake Rukwa Valley, Wembere plains and Bahi Valley will also experience breeding.

Buzi-Gorongosa and Dimba plains in **Mozambique** where large populations were previously reported and good rains have begun towards the end of November will see a good amount of breeding. In **Zambia**, Community Based Monitoring groups in Kafue Flats reported swarms that infested 17,000 were expected to have commenced breeding after the good rains that fell during November (IRLCO-CSA).

Forecast: Large scale development is expected through March, 2017 in the Malagarasi Basin and Ikuu-Katavi plains in **Tanzania** where considerable number of adults that were not controlled over-seasoned. Massive hopper bands are also expected to develop in the Kafue Flats in **Zambia** where adults estimated at more than 17,000 ha are expected to have persisted. In Lake Chilwa/Lake Chiuta plains that transcend **Malawi** and **Mozambique** significant populations will breed and increase locust numbers in the coming months.

It is critical that timely surveillance, monitoring and control operations are launched against hoppers in February and March and prevent fledglings from appearing thereafter which can otherwise making the situation much more complicated to abate them as they will form adult swarms and begin flying around and easily reach cropping and grazing areas and threaten food security of vulnerable populations.

IRLCO-CSA, the only entity in the southern region with the mandate to

survey, monitor, prevent and control locusts, armyworm and quelea birds, continues appealing to its member-states to avail resources to carry out timely surveys, monitoring and control operations and contribute to food security and livelihoods of vulnerable populations in the region that has already been battered by multiple calamities. It is in the interest of all concerned that IRLCO-CSA's member-states positively and generously respond to the Organization's please for resources and enable it to abate, prevent and control these pests successfully and prevent them from reaching a plague stage and ravage crops and pasture and end up being unstoppable (IRLCO-CSA, OFDA-AELGA).

Madagascar Migratory Locust (LMC): No update was received at the time this report was compiled.

www.fao.org/emergencies/crisis/madagascar-locust/en/.

<http://www.fao.org/emergencies/resources/videos/video-detail/en/c/430729/>

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): Locust activities have concluded in the CAC region.

Forecast: No locust activities are expected during the forecast period in CAC. The Aral Sea region where large-scale egg laying of LMI occurred during 2016 will likely experience massive hatching and hopper developments in spring 2017. Other breeding areas such as northern **Afghanistan** where undisturbed prolonged egg laying exploited the ongoing insecurity in the region may also experience increased locust activities in 2017. Vigilance,

marking egg laying grounds remain essential to plan for the next campaign in 2017.



CAC countries affected by CIT, DMA and LMI species (source: FAO-ECLO).

Note: Italian, Migratory and Moroccan locusts and some grasshopper species are a constant threat to the CAC region. They profusely multiply and attack tens of millions of hectares of crop and pasture and adversely affect food security and livelihoods of more than 20 million vulnerable inhabitants that eke out a living primarily from farming and herding. With the ability to travel more than 100 km (60 miles) each day, these locusts can decimate dozens of hectares of cereal crops, pasture, cotton, fruit trees, leguminous plants, sunflower, tobacco, vineyard, vegetable and others over vast areas. Many CAC countries affected by these locusts lack robust and well established capacity to effectively prevent and control these pests, but do their level best and invest tremendous amounts of resources to keep these pests under control. USAID/OFDA has been supporting a DRR program to strengthen national and regional capacity to help abate these beasts (for further detail, refer to page 6, column two paragraph two). End note.

Timor and South Pacific: No update was received from East Timor during October, but it is likely that ETOPs continued to be present.

African Armyworm (AAW): AAW monitoring commenced in the IRLCO-CSA region where pheromone traps were supplied and no AAW infestations were reported during November.

Forecast: AAW season is expected to commence in the southern and part of the central outbreak regions during the forecast period and frontline countries are advised to remain ready to monitor and forecast and launch timely preventive interventions. CABMFEW forecasters must remain vigilant and report any trap catches to concerned authorities on time to facilitate rapid interventions (DLCO-EA, IRLCO-CSA, OFDA/AELGA).

*It is worth mentioning that local farmers and communities trained by **OFDA-funded CBAMFEW** project were the first to report the presence of AAW in southeastern and northern regions of Ethiopia. The CBAMFEW's timely actions enabled MinAgri staff and local communities to avert what could have otherwise caused a serious damage to crops and pasture. CBAMFEW forecasters are also monitoring and reporting AAW presence in other countries (PPD/Ethiopia, PHS/Tanzania). The CBAMFEW forecaster must be encouraged and supplied with pheromone capsules and the necessary materials to continue with their assignments (OFDA/AELGA).*

Note: OFDA/PSPM continued developing and improving AAW information in both the SOR and COR. So far, printable and web-based maps have been developed for AAW outbreak and invasion countries

in the central and southern regions (click here for the SOR maps):

<http://usaid.maps.arcgis.com/apps/View/index.html?appid=9d2ab2f918284595819836d1f16a526f>

Quelea (QQU): QQU outbreaks were reported in Busia, Kirinyaga and Kisumu Counties in **Kenya**, where several roosts comprising tens of millions of birds were detected. Preparations are underway by MoA/Kenya and DLCO-EA to launch preventive interventions to protect crops. In **Tanzania**, QQU outbreaks were reported in Kilimanjaro Region and assessment is underway to determine the abatement required. In **Ethiopia** aerial control operations treated more than 25 QQU roosts on 650 ha in Amhara Region in November. QQU outbreaks were also reported in Kibimba Rice fields in eastern **Uganda** during November. Traditional scaring technique was employed to fend off the birds (this method often has minimal impacts on preventing the pest from causing damage to crops). No reports were received from **Malawi, Mozambique, Zambia** or **Zimbabwe** or other outbreak regions (DLCO-EA, IRLCO-CSA).

Forecast: QQU outbreaks will continue being a problem to irrigated rice crops in Busia, Siaya, Kisumu and, Kirinyaga counties of **Kenya**, Kilimanjaro Region in **Tanzania** and Mashonland in **Zimbabwe** and likely cause damage to small grain cereals by mid-January, 2017 (IRLCO-CSA). The pest will go into breeding season in other countries in the southern outbreak region and significant outbreaks are unlikely during the forecast period.

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: Serious rodent infestations were reported in **Georgia** where the pest was seen damaging serial and vegetable crops (OFDA technical Adviser for pests and pesticides discussed this issue with colleagues from MoA/Georgia and provided them information on rodent biology, behavior, prevention and control strategies.

(Note: On average an adult rat can consume 3-5 gm of food (grains etc.)/day and a populations 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 and making it unfit for human consumption) and to zoonotic diseases they can transmit.

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

Inventories of Pesticide Stocks for ETOP Prevention and Control

In November, control operations treated 10,107 ha in **Mauritania**, **422 ha in Algeria**, 75 ha in **Morocco**, 50 ha in **Niger**, 850 ha in **Eritrea**, 800 ha in **Sudan** and 40 ha in **Yemen** and that will change the pesticide inventory in each country by the corresponding amount for this month.

Note: SGR invasions countries where large inventories of obsolete stocks, some dating as far back as 2003-05 locust campaign and even earlier than and those that inherited from Soviet era, must secure that these stocks are kept in safe places until they are properly disposed. Safe disposal of these stocks requires considerable amount of resources, but significantly minimizes health risks and environmental pollution. **End note.**

Note: A Sustainable Pesticide Stewardship (SPS) can strengthen pesticide delivery system (PDS) at the national and regional levels. A strong PDS can effectively reduce pesticide related human health risks, minimize environmental pollution, increase food security and contribute to the national economy. An SPS can be effectively established by linking key stakeholders across political borders. **End Note.**

OFDA/PSPM encourages alternatives such as IPM to reduce risks associated with pesticide stockpiling. A judiciously executed triangulation of surplus stocks from countries with large inventories to countries in need is a win-win situation worth considering.

Table 3. ETOP Pesticide Inventory in Frontline Countries during March, 2016

Country	Quantity (l/kg)*
Algeria	1,188,847~
Chad	38,300
Egypt	68,070~ (18,300 ULV, 49,770 I)
Eritrea	17,400~ + 20,000 ^D
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000 ^D
Mali	16,190
Mauritania	15,637 ^{DM}
Morocco	3,490,878 ^D
Niger	75,750~
Oman	10,000~
S. Arabia	93,600~
Senegal	156,000~
Sudan	169,980~
Tunisia	68,514 obsolete
Yemen	41,585 ^D + 180 kg GM~

* Includes different kinds of pesticide 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 = *GreenMuscle*TM (fungal-based biological pesticide)

LIST OF ACRONYMS

AAW	African armyworm (<i>Spodoptera expempta</i>)	DPPQS	Department of Plant Protection and Quarantine Services, India
AELGA	Assistance for Emergency Locust Grasshopper Abatement	DPV	Département Protection des Végétaux (Department of Plant Protection)
AFCS	Armyworm Forecasting and Control Services, Tanzania	ELO	EMPRES Liaison Officers –
AfDB	African Development Bank	EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
AME	<i>Anacridium melanorhodon</i> (Tree Locust)	EOR	Eastern SGR Outbreak Region
APLC	Australian Plague Locust Commission	ETOP	Emergency Transboundary Outbreak Pest
APLC	Australian Plague Locust Commission Bands groups of hoppers marching pretty much in the same direction	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

LMC *Locusta migratoriacapito* (Malagasy locust)
 LMM *Locusta migratoria migratorioides* (African Migratory Locust)
 LPA *Locustana pardalina*
 MoAFSC Ministry of Agriculture, Food Security and Cooperatives
 MoAI Ministry of Agriculture and Irrigation
 MoARD Ministry of Agriculture and Rural Development
 NALC National Agency for Locust Control
 NCDLC National Center for the Desert Locust Control, Libya
 NOAA (US) National Oceanic and Aeronautic Administration
 NPS National Park Services
 NSD Republic of North Sudan
 NSE *Nomadacris septemfasciata* (Red Locust)
 OFDA Office of U.S. Foreign Disaster Assistance
 PBB Pine Bark Beetle (*Dendroctonus* sp. – true weevils)
 PHD Plant Health Directorate
 PHS Plant Health Services, MoA Tanzania
 PPD Plant Protection Department
 PPM Pest and Pesticide Management
 PPSD Plant Protection Services Division/Department
 PRRSN Pesticide Risk Reduction through Stewardship Network
 QQU *Quelea Qulelea* (Red Billed Quelea bird)
 SARCOF Southern Africa Region Climate Outlook Forum
 SPB Southern Pine Beetle (*Dendroctonus frontalis*) – true weevils
 SGR *Schistoseca gregaria* (the Desert Locust)
 SSD Republic of South Sudan
 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.
 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...

Who to contact for more information:

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