

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

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹) declined in January in the Western Outbreak Region (WOR) due to aggressive control interventions by the national locust control units and unfavorable ecological conditions. Control operations treated 126 ha in **Morocco** during this month. In **Mauritania**, the situation remained fairly calm and only 185 ha were treated. In the WOR temperatures will gradually rise and locusts will start moving to spring breeding areas in southeastern Morocco but significant development are not likely during the forecast period.

In **Sudan** survey operations continued covered winter breeding areas along the southern coastal plains and control operations treated late instar hopper bands and fledglings on 100 ha near Aiterba. In **Eritrea** hopper groups and at least one band formed from local breeding on the northern Red Sea coast and controlled on 276 ha. Surveys were not conducted and the situation is not clear in **Yemen**. An outbreak developed on the Red Sea coast in

early January in **Saudi Arabia** where 2 generations of breeding occurred and groups of hoppers adults were forming. 4240 ha were treated during this month. No locusts were reported in Oman, Ethiopia, Somalia or other countries in COR. Breeding will likely continue and increase locust numbers along the Red Sea coasts in **Sudan** and perhaps northern coast of **Eritrea**. Small-scale breeding is likely in northwest **Somalia**. 3rd generation breeding may begin in **Saudi Arabia** during the forecast period, but significant developments are not likely in the COR during the forecast period.

No locusts were reported in the Eastern Outbreak Region (EOR) in India, Iran, Pakistan or Afghanistan during January. EOR will remain calm during the forecast period.

Active surveillance and timely preventive interventions remain critical to abate any 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

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

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):

NSE breeding continued in **Malawi, Mozambique, Tanzania** and **Zambia** in January 2017. Ground and aerial surveys detected a mixture NSE and the African Migratory Locust (LMI) hoppers spread over 10,000 ha in the Kafue flats, **Zambia**. Aerial survey continued in the Kafue Flats, Lukanga Swamps and Simalaa plains at the time this report (IRLCO-CSA).

Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts: No locusts were reported in the Central Asia and the Caucasus (CAC) regions and the situation will remain calm until next spring.

The African Armyworm (AAW):

Armyworm outbreaks continued in **Malawi, Tanzania and Zimbabwe** during January. The pest was reported attacking thousands of hectares of maize crops (IRLCO, Media outlets).

Fall armyworm (*Spodoptera frugiperda*) (FAW), an armyworm species alien to the region was reported (IRLCO-CSA) destroying maize in **Zambia** and **Zimbabwe** in January. The pest was first reported in mid-December 2016 and continued

appearing in **Zimbabwe, Zambia, Malawi** and **Mozambique**.

According to IRLCO-CSA, the infestation subsided by the end of January 2017 due to intensive control operations undertaken by farmers in the affected countries with material (pesticides, sprayers) and technical assistance from their respective



governments. In addition to providing material and technical support to the

affected farmers, Ministries of

agriculture (MoA) in the affected countries launched assessment mission to determine the extent of damage and evaluate the potential impact on maize production in the affected areas.



The pest costs Brazil, the 3rd largest maize producer after the USA and China, \$600 million in control each year.

Quelea (QQU): QQU outbreaks were reported in several places in **Kenya**, northern **Tanzania**, and **Uganda** during January. Aerial control was implemented in Kisumu, Siaya and Busia counties in Kenya.

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.

OFDA Adviser found the inception meeting and the M-ToT refreshing and he thought DLCO and FAO staff as well as representatives of participating countries were encouraging. He emphasized to all participants that maintaining such dedication and commitments throughout the life of the project are essential and will contribute to the success of the project and maintain sustainability.

During his trip to Astana, where he attended the final regional technical meeting of the CAC multi-donor locust project, the Adviser noted candid discussions among partners.

He noted issues that were raised during discussions on the status of the milestones that were set during the course of the inception year and witnessed key constraints being 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 that the multi-donor multi-country project to which OFDA provided financial support accomplished a number of key milestones over the past five plus years. Representatives of benefiting countries were grateful for the support that USAID, FAO and others provided through the joint project. The project significantly improved host country capacities in surveying, monitoring and controlling locusts as well as timely reporting and information sharing. Countries were exposed to new technologies such as ultralow volume sprayers, GIS based locust survey and reporting, technics for human health monitoring during and post-locust operations and many more. 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 operations.

The Adviser noted that FAO and participating countries expressed commitments that 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 valuable achievements over the past five plus years. It is believed that this will help maintain sustainability of the achievements of the project and maximize the positive impacts it has made at the national and regional levels in abating the threats locusts pose to more than 20 million plus farmers and herders in the CAC regions covering more than 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 diminué en janvier dans la Région de l'épidémie de l'ouest (WOR) en raison des interventions agressives de lutte menées par les unités nationales de lutte antiacridienne et de conditions écologiques défavorables. Les opérations de contrôle ont traité 126 ha au Maroc pendant ce mois. En Mauritanie, la situation est restée assez calme et seulement 185 ha ont été traités. À l'échelle mondiale, les températures augmenteront graduellement et les criquets commenceront à se déplacer vers les zones de reproduction printanière du sud-est du Maroc, mais des évolutions significatives ne sont pas probables pendant la période de prévision.

Au Soudan, les opérations d'enquête ont continué à couvrir les zones d'élevage hivernal le long des plaines côtières du sud et les opérations de contrôle ont traité les bandes larvaires de stade final et les alevins sur 100 ha près d'Aiterba. En Erythrée, les groupes de trémies et au moins une bande formée à partir d'élevage local sur la côte nord de la mer Rouge et contrôlé sur 276 ha. Les enquêtes n'ont pas été menées et la situation n'est pas claire au Yémen. Une épidémie s'est développée sur la côte de la mer Rouge au début de janvier en Arabie saoudite où deux générations d'élevage ont eu lieu et des groupes de larves adultes se formaient. 4240 ha ont été traités pendant ce mois. Aucun criquet n'a été signalé en Oman, en Ethiopie, en

Somalie ou dans d'autres pays du COR. L'élevage se poursuivra probablement et augmentera le nombre de criquets le long des côtes de la mer Rouge au Soudan et peut-être dans la côte nord de l'Érythrée. La reproduction à petite échelle est probable dans le nord-ouest de la Somalie. L'élevage de 3e génération peut commencer en Arabie saoudite pendant la période de prévision, mais des évolutions significatives ne sont pas probables dans le COR pendant la période de prévision.

Aucun Criquet pèlerin n'a été signalé en janvier, en Inde, en Iran, au Pakistan ou en Afghanistan. EOR restera calme pendant la période de prévision.

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

Les engagements des autorités nationales, avec l'appui des partenaires régionaux et internationaux et des bailleurs de fonds, par exemple l'USAID, l'AID, la FAO, la BAD, etc., ont permis aux pays de la première ligne de travailler en Algérie, au Tchad, en Libye, au Mali, en Mauritanie, au Maroc et au Niger, Le Sénégal et la Tunisie, ainsi qu'un certain nombre de pays membres du COR à mettre en place des unités nationales de gestion des acridiens pleinement opérationnelles responsables de la lutte contre les

ravageurs migrants. En 2012, 2015, 2016, etc., un certain nombre de pays de première ligne ont pu contrecarrer de nombreuses menaces potentiellement graves pour les criquets pèlerins. Appui technique et matériel et coordination des programmes CLCPRO, CRC, DLCO-EA, EMPRES, FAO / ECLO Et l'assistance fournie par l'accord de coopération de l'USAID avec la FAO se sont révélées absolument précieuses.

Rouge (nomade) Locust (NSE):

L'élevage de NSE a continué au Malawi, au Mozambique, en Tanzanie et en Zambie en janvier 2017. Des prospections terrestres et aériennes ont détecté un mélange NSE et les larves migratrices africaines (LMI) réparties sur 10 000 ha dans les habitations de Kafue en Zambie. Le relevé aérien a continué dans les plaines de Kafue, les marais de Lukanga et les plaines de Simalaa au moment où ce rapport (IRLCO-CSA).

(CIT), Marocain (DMA), Migrations asiatiques (LMI):

Aucun Criquet pèlerin n'a été signalé dans les régions d'Asie centrale et du Caucase (CCA) et la situation restera calme jusqu'au printemps prochain.

Cheille Légionnaire (AAW):

Les éclosions de larves de l'armée ont continué au Malawi, en Tanzanie et au Zimbabwe en janvier. Le ravageur a été signalé attaquant des milliers d'hectares de cultures de maïs (IRLCO, médias).

Une larve de l'automne

(Spodoptera. Frugiperda) (FAW), une espèce de tétranype étrangère à la région a été signalée (IRLCO-CSA) qui a détruit le maïs en Zambie et au Zimbabwe en janvier. Le ravageur a été signalé pour la première fois à la mi-décembre 2016 et a continué à apparaître au Zimbabwe, en Zambie, au Malawi et au Mozambique. Selon IRLCO-CSA, l'infestation s'est calmée à la fin de janvier 2017 en raison des opérations de contrôle intensif menées par les agriculteurs des pays touchés par des matières (pesticides, pulvérisateurs) et l'assistance technique de leurs gouvernements respectifs. En plus de fournir un soutien matériel et technique aux agriculteurs touchés, les ministères de l'agriculture (MA) des pays touchés ont lancé une mission d'évaluation pour déterminer l'ampleur des dommages et évaluer l'impact potentiel sur la production de maïs dans les zones touchées. Le ravageur coûte au Brésil, le troisième plus gros maïs produit après les États-Unis et la Chine, 600 millions de dollars de contrôle chaque année.

Quelea (QQU): Des éclosions de QQI ont été signalées en janvier au Kenya, au nord de la Tanzanie et en Ouganda. Le contrôle aérien a été mis en œuvre dans les comtés de Kisumu, Siaya et Busia au Kenya.

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.

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 acridien 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 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 continued deteriorating and green vegetation was drying to drying up with the exception of low laying areas and sand dunes in WOR during January.

Central Outbreak Region: Ecological conditions remained favorable in winter breeding areas along the southern Red Sea coastal plains of **Sudan** where soil moisture was wet and vegetation was mostly green. In **Eritrea**, light rain was reported along northern Red Sea coast between Massawa and Karura and vegetation was still green, but the central Red Sea coast was largely dry during the 3rd dekad of January. Light showers were reported in northern Somalia and dry weather persisted in Djibouti, eastern Ethiopia and Oman (DLCO-EA, DLMCC/Yemen, DLMC/Oman, FAO-DLIS, PPD/Eritrea, PPD/Sudan).

Eastern Outbreak Region: The EOR received good rains in southeastern Iran and southwestern Pakistan and breeding conditions will likely improve.

NSE Outbreak Region

Moderate to heavy rains were recorded at several locations near the NSE outbreak areas in **Malawi** (113 mm in Salima), **Mozambique** (180 mm in Dimba), **Tanzania** (198 mm in Kaliua and Muzi) and **Zambia** (359 mm in Kafua Flats) during January. In **Zambia** flooding occurred in Kafua Flats where hatching is completed and hoppers can survive on partially submerged grasses (IRLCO-CSA).

No update was reported in CAC, but dry and cold weather is expected to have prevailed in most of the locust breeding areas during January.

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/grab 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:

Owing to intensive survey and control operations by CNLA staff coupled with

unfavorable ecological conditions, locust numbers continued declining in **Mauritania** during January. Limited breeding was reported in northwestern part of the country where small groups of hoppers and adults were treated on 185 ha during the 2nd and 3rd dekads of the month CNLA treated 17,245 ha since the current campaign began in September, 2016 (CNLA/Mauritania).

In **Morocco**, a survey and control team was mobilized in the southern part of the country in Bir Guendouz, Dakhla-Oued Eddahab region where a group of transient late instar hoppers with an average density of 13 larvae/m² were controlled south-east of Bir Guendouz. Two groups of transient adults with a density of 4,500 and 5,200 individuals/ha were also treated on 70 and 45 ha respectively bringing the total areas treated during the 1st dekad to January to 126 ha (CNLAA/Morocco). Small-scale breeding continued in northern Niger during January.

Forecast: With the gradual rise in temperature, locusts will move to spring breeding areas on the southern side of the Atlas Mountains in **Morocco** and begin breeding on a limited scale. Breeding may also commence in northern **Mauritania** during the forecast period. Low number of adults will likely persist in northern Mali, Niger, western Algeria and Libya, but significant developments are not likely during the forecast period (CNLA/Mauritania, CNLAA/Morocco, FAO-DLIS, NALC/Chad, NLCC/Libya). (CNLA/Mauritania, CNLAA/Morocco, CNLA/Chad, CNLA/Tunisia, FAO-DLIS, NLLC/Libya).

SGR (Desert Locust) - Central

Outbreak Region: In **Eritrea**, the SGR

situation improved in January along the Red Sea coasts between Shelshela (1553N/03902E) and Hable ketin (1756N/3829E). Mature adults, hopper bands, and gregarious hoppers were treated on 276 ha near Hable Ketin during this month. In **Sudan** survey operations continued in winter breeding areas along the southern coastal plains, from Port Sudan to south of Swakin and along wadi Diib-Okto west of the Red sea Hills. Control operations treated 100 ha near Aiterba in the southern coastal plain against late instar hopper bands and fledglings. In **Saudi Arabia**, favorable conditions allowed 2nd generations and an outbreak on the Red Sea coast in early January. Hopper groups and bands were forming in winter breeding areas starting the 2nd week of January and towards the end of the month, adult were forming groups. Control operations treated more than 4242 ha during this month. No locusts were reported in Ethiopia or Oman where surveys were carried out in January in Musandam, Bureimi, South Battinah and Dakhiliya Regions. On 10 January an unconfirmed report indicated the presence of hoppers in **northern Somalia**. The SGR situation is not clear in winter breeding areas in **Yemen** where survey operations were not possible. (DLCO-EA, DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Eritrea, PPD/Sudan).

Forecast: Locust numbers will likely increase on the Red Sea coastal areas from Suakin to Karora in **Sudan** and northern coast of **Eritrea** around Karura, but decline in the central coast of the country in the forecast period (FAO-DLIS, PPD/Eritrea, PPD/Sudan).

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

Forecast: Good rains that fell in southeast Iran and southwest Pakistan will likely create favorable conditions for spring breeding in the EOR 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): Ground and aerial surveys in the Kafue Flats in **Zambia** by MoA/Zambia and IRLCO-CSA detected the presence of a mixture of the African Migratory Locust (LMI) and medium to high density early to mid-instar hoppers over 10,000 ha. The hoppers were reported causing damage to maize crop in areas adjacent to wild grasses. Over 1,600 ha of maize fields within the Kafue Flats were affected. Low to medium density hoppers were also detected in 9,000 ha in grassland between maize fields. Aerial surveys are in progress in the Kafue Flats, Lukanga Swamps and Simalaa plains and plans are underway to carry out control operations. The **Government of Zambia** provided financial resources to IRLCO to undertake survey and control operations. Although extensive surveys were not conducted in Ikuu-Katavi plains, North and South Rukwa, Malagarasi Basin in **Tanzania**; Lake Chilwa/Lake Chiuta plains which are shared by **Malawi** and **Mozambique** and Buzi-Gorongosa plains, Dimba plains in **Mozambique**, the presence of significant number of hoppers and bands is likely, according to IRLCO-CSA.

Forecast: Hopper bands and groups will form in the outbreak areas in the region where significant parental populations were assumed present prior to the onset of the seasonal rains. Fledging will form massive immature adults in the primary NSE outbreak areas during the forecast period. Intensive ground and aerial surveys are critical to evaluate the level of threat the locusts pose and determine appropriate intervention plan (IRLCO-CSA).

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): No update was received and no locust activities are expected in the CAC region during January.

Forecast: 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 will likely 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.

African Armyworm (AAW): AAW outbreaks were reported in Matebeleland North Province in **Zimbabwe** where the pest was reported attacking grass pasture and control operations were in progress. In **Malawi**, AAW outbreak was reported affecting a small area in Shire Valley Agriculture Development Division and controlled by affected farmers. In **Mozambique**, AAW was reported in Manica, Sofala and Tete Provinces where the pest was reported damaging maize, rice and grass pasture. Affected farmers carried out control operations with material and technical assistance from the Ministry of Agriculture. In **Tanzania**, mild outbreaks were reported in Morogoro and Lindi Regions. The pest

was controlled by the affecting farmers with material (pesticides) and technical assistance from Ministry of Agriculture and Livestock. There were no reports of AAW outbreaks in **Kenya** and **Zambia** during this time (IRLCO-CSA).

Forecast: AAW outbreaks will occur in **Kenya** and northern **Tanzania**, but **Malawi, Mozambique, Zambia** and **Zimbabwe** will likely witness isolated outbreaks during the forecast period.

Where applicable, CABMFEW farmer and community forecasters must remain vigilant and report any trap catches on time to concerned authorities 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).*

Fall armyworm (Spodoptera frugiperda) (FAW), an armyworm species alien to the region was reported (IRLCO-CSA) destroying maize in **Zambia** and **Zimbabwe** during January. The pest was first reported in mid-December 2016 and continued appearing

in **Zimbabwe, Zambia, Malawi** and **Mozambique**.

According to IRLCO-CSA, the infestation subsided by the end of January 2017 thanks to intensive control operations undertaken by farmers in the affected countries with material (pesticides, sprayers) and technical assistance from their respective governments. In addition to providing material and technical support to the affected farmers, Ministries launched assessments to determine the extent of damage and evaluate the potential impact on maize production in the affected areas.

In early 2016, FAW was also detected in South-West Nigeria and neighboring Sao Tome and Principe, Benin and Togo. The pest was first reported attacking maize crops in the rainforest zones of south-western Nigeria and in maize fields of the International Institute of Tropical Agriculture in Ibadan and Ikenne in Nigeria (Goergen et al., 2016 <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0165632>) (see FAW adult moth and larva below and maize plant damaged by FAW next column).



While the cause for the appearance of the FAW (a pest indigenous and well

established and common in the Americas) is not clear, some blame trade/transporting goods across nations as a possible source.



Others associate this phenomenon with climatological anomalies (strong

wind, cyclones, storms, etc.) that can carry the moths to a great distance. The moth, its eggs and larvae and even pupae can be carried around with planting materials, such as sods for turf building, etc. It may be possible that ongoing investigations and other similar efforts could throw some light on the cause for the introduction of this pest to the continent its presence was not known prior to this.

This species has a range extension of thousands of kilometers and a voracious appetite with close to 100 species of host plants to feed on, including graminaceous and non-graminaceous plants – maize, wheat, barley, sorghum, millets, sugar cane, cowpea, potatoes, vegetables, cotton and many more can threaten vast areas of agricultural fields in tropical Africa.

Its comparative evolutionary advantage of stronger serrated mandibles (jaws) enables it to munch on virtually any part of its host plant whether young or silicate old parts and can even cannibalize its own and other similar pests.

With these and the ability to continue breeding non-stop under favorable conditions, the FEW is in for the long haul in its new territory where known natural enemies to keep it in balance are unlikely. This pest will likely take advantage of every means possible and dominate the indigenous armyworm



species and become a formidable pest with significant economic implications.

The young larvae of this pest that are susceptible to pesticides, develop inside the maize stock well protected from external threats, thus making use of contact pesticides for early instars ineffective. However, both young and late instar larvae are susceptible to other control tools (systemic pesticides, biopesticides and other biological control tools, etc.). Early detection, early warning, and preventive interventions can be useful tools.

Note: OFDA/PSPM will continue monitoring the situation and issue guidance and updates as often as necessary.

PSPM continuous developing and improving AAW information in both the SOR and COR and 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/Viewer/index.html?appid=9d2ab2f918284595819836d1f16a526f>

Quelea (QQU): QQU outbreaks occurred in Kisumu, Siaya, Busia, Kitui (Kitui Central, Mutomo mbitini), Makueni and Embu (Mbeere sub-county) in **Kenya**. The birds were causing damage to rice in Kisumu, Busia and Siaya counties and millet and sorghum in Kitui, Mbeere and Makueni counties. Aerial operations controlled 6 roosts in Kisumu County with 300 liters of avicide. Control was in progress in Siaya and Busia counties at the time this report was compiled. QQU birds were reported causing damage to

crops in Kilimanjaro Region in **Tanzania** where plans are underway to launch control operations. A late received report indicated that aerial operations controlled two roosts of QQU in Amhara Region of **Ethiopia** during December. QQU outbreaks were also reported in Kibimba Rice fields in eastern **Uganda**, but no damage occurred as the crops had been harvested at the time the birds arrived (DLCO-EA, IRLCO-CSA).

Forecast: QQU outbreaks will continue posing a problem to rainfed and irrigated crops in **Kenya, Mozambique, Tanzania** and **Zimbabwe** during the forecast period (IRLCO-CSA).

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 January, control operations treated 185 ha in **Mauritania**, 126 ha in **Morocco**, 276 ha in **Eritrea**, 100 ha in **Sudan** and 4,242 ha in Saudi Arabia.

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	17,124~ + 20,000 ^D
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000 ^D
Mali	7,000
Mauritania	15,452 ^{DM}
Morocco	3,490,752 ^D
Niger	75,750~
Oman	10,000~
S. Arabia	93,600~
Senegal	156,000~
Sudan	169,880~
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 (Spodoptera expempta)*

AELGA *Assistance for Emergency Locust Grasshopper Abatement*

AFCS *Armyworm Forecasting and Control Services, Tanzania*

AfDB *African Development Bank*

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*

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 Pèlerin 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 *Dociostaurus maroccanus (Moroccan Locust)*

DPPQS *Department of Plant Protection and Quarantine Services, India*

DPV *Département Protection des Végétaux (Department of Plant Protection)*

ELO *EMPRES Liaison Officers –*

EMPRES *Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases*

EOR *Eastern SGR Outbreak Region*

ETOP *Emergency Transboundary Outbreak Pest*

Fledgling *immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed*

GM *GreenMuscle[®] (a fungal-based biopesticide)*

ha *hectare (= 10,000 sq. meters, about 2.471 acres)*

ICAPC *IGAD's Climate Prediction and Application Center*

IGAD *Intergovernmental Authority on Development (Horn of Africa)*

IRIN *Integrated Regional Information Networks*

IRLCO-CSA *International Red Locust Control Organization for Central and Southern Africa*

ITCZ *Inter-Tropical Convergence Zone*

ITF *Inter-Tropical Convergence Front = ITCZ)*

FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service	SARCOF	Southern Africa Region Climate Outlook Forum
Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)	SPB	Southern Pine Beetle (<i>Dendroctonus frontalis</i>) – true weevils
JTWC	Joint Typhoon Warning Center	SGR	<i>Schistoseca gregaria</i> (the Desert Locust)
Kg	Kilogram (~2.2 pound)	SSD	Republic of South Sudan
L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)	SWAC	South West Asia DL Commission
LCC	Locust Control Center, Oman	PBB	Pine Bark Beetle
LMC	<i>Locusta migratoriacapito</i> (Malagasy locust)	PSPM	Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)
LMM	<i>Locusta migratoria migratorioides</i> (African Migratory Locust)	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.
LPA	<i>Locustana pardalina</i>	USAID	the United States Agency for International Development
MoAFSC	Ministry of Agriculture, Food Security and Cooperatives	UN	the United Nations
MoAI	Ministry of Agriculture and Irrigation	WOR	Western SGR Outbreak Region
MoARD	Ministry of Agriculture and Rural Development	ZEL	<i>Zonocerus elegans</i> , the elegant grasshopper
NALC	National Agency for Locust Control	ZVA	<i>Zonocerus variegatus</i> , 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...
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	<i>Nomadacris septemfasciata</i> (Red Locust)		
OFDA	Office of U.S. Foreign Disaster Assistance		
PBB	Pine Bark Beetle (<i>Dendroctonus sp.</i> – 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	<i>Quelea Qulelea</i> (Red Billed Quelea bird)		

Who to contact for more information:

If you have any questions, comments or suggestions or know someone who would like to freely subscribe to this report or unsubscribe, please, contact:

Yeneneh Belayneh, PhD.

ybelayneh@usaid.gov

Tel.: + 1-202-712-1859

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