

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

## SUMMARY

The **Desert Locust (SGR<sup>1</sup>)** situation continued developing in February in winter breeding areas in northwest Africa. **Morocco** and **Mauritania** controlled 2,255 ha during this month. Solitary adults were also reported in northern **Mali** and western **Algeria** and a few adults and late instar hoppers were reported in Temesna, **Niger**. No locusts were reported in **Chad, Senegal, Libya** or **Tunisia** during this period.

Some scattered solitary adults were detected in a few places in winter breeding areas in the central outbreak region in **Sudan, Yemen, Saudi Arabia** and northwest **Somalia**. No locusts were reported in **Djibouti, Eritrea, Ethiopia, Oman**, or in the eastern outbreak region in **Iran, Pakistan** or **India** during February.

**Forecast:** Small-scale breeding is likely and slightly increase SGR numbers in the western outbreak region during the forecast period. Locusts may appear and breed in the central outbreak region if rain falls. A few adults may appear in southeast **Iran** and southwest **Pakistan** during the forecast period.

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

## ACTIONS BEING TAKEN

**Mauritania** continued survey and control operations treated 1, 214 ha in Tiris Zemmour in the northern part of the country during February (5,259 ha treated since the beginning of the current on November 2, 2015).

**Morocco** continued survey in Dakhla Region - Oued Ed-Dahab, Laayoune-Sakia El Hamra and Guelmim-Oued Noun as well as Figuig province south of the country and treated 1,041 ha during February (3,663 ha have been treated since December 23<sup>rd</sup>). Two fixed-wing Turbo Thrush spray aircraft are on stand-by in the Dakhla-Oued Ed-Dahab Region.

FAO and **Morocco/CNLAA** provided training to Afghanistan and Kyrgyzstan staff to improve locust management in CAC and strengthen collaborations among ETOP countries. The training was carried out from 31 January to 17 February and at CNLAA HQ in Inzegane in Draa Region.

**Mali's** National Locust Control Center launched locust unit to conduct survey and remain on the look-out should the security situation allow access to the northern regions.

Survey covered more than 27,000 ha in winter breeding areas in **Sudan**. Earlier, PPD/**Sudan** joined forces with its **Eritrean** counterpart and conducted surveys across their borders in the Red Sea region.

**DLCO-EA** continued monitoring the SGR situation in **Somalia** and other

member-countries in collaboration with national counterparts.

In **Yemen**, the security situation and lack of resources continue being impediments to survey and monitoring of primary breeding and outbreak areas (particularly north of Tihama, the Gulf of Aden Region, the Southern coastal areas and the interior) where the locust situation remains unclear.

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

## OTHER ETOPS

### **Pine Bark Beetle Outbreaks**

**Honduras** is suffering from large-scale outbreaks of the pine bark beetle (PBB) which is destroying pine and other trees. GoH has declared a national disaster and deployed armed forces to tackle the problem. The country is appealing to the international community for assistance to abate the outbreak.

The pest is also reported affecting several other countries in Central and South American, including **Belize, Brazil, El Salvador, Guatemala, Nicaragua** and impacting forest ecology and agroforestry.

The beetles are severely affecting pine and other trees in the **USA, Canada and Mexico** where millions of trees are dying. In North America (the Rocky Mountains) the outbreaks are attributed to warmer than normal winter temperatures over the past decade which created favorable ecological conditions for the beetles to persist. This is compounded by the lower than normal precipitation that weakens the trees (NPS).

**Red (Nomadic) Locust (NSE):** No NSE updates were received from the outbreak countries in February, but it is likely that different instar hoppers are present in Ikuu-Katavi and North Rukwa (IRLCO-CSA).

### **Madagascar Migratory Locust**

**(LMC):** The final phase of the three-year campaign that began in August, 2015 is in progress. As of February 10, 2016, it has reported treated/controlled 199,947 ha. It has also contributed to the significant reduction in locust numbers as well as the areas infested. As a result, survey and control are limited to the southwest outbreak area. With the below normal rainfall reported, locusts will likely regroup in patches of green vegetation and breed during the forecast period.

**Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts,** Central Asia and the Caucasus (CAC): CAC will remain calm until spring.

**African Armyworm (AAW):** AAW outbreaks were reported in **Tanzania,**

**Malawi and Mozambique** in February.

**Quelea quelea (QQU)**: QQU bird outbreaks were not reported during February.

**Tree locust (*Anacridium sp.*)**: A tree locust outbreak that was reported in Turkana County in **Kenya** in January persisted through February.

*Increased awareness among national authorities and the support from USAID/OFDA, FAO and other humanitarian/development partners have helped frontline and primary invasion countries in Northern Africa and Sahel West Africa, i.e., Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia to establish autonomous unit at the national level for the prevention and control of SGR. End summary*

## RÉSUMÉ

**Le (SGR)** situation relative au Criquet pèlerin a continué de développer en Février dans les zones de reproduction hivernale du nord-ouest Afrique. **Le Maroc** et **la Mauritanie** contrôlées 2.255 ha au cours de ce mois. Les ailés solitaires ont également été signalés dans le nord du **Mali** et de **l'Algérie** occidentale et quelques adultes et larves de dernier stade ont été signalés en Temesna, **Niger**. Aucun criquet n'a été signalé au **Tchad, le Sénégal, la Libye** ou **la Tunisie** au cours de cette période. Quelques ailés solitaires épars ont été détectés dans quelques endroits dans les zones de reproduction hivernale

dans la région de l'épidémie centrale au Soudan, au Yémen, en **Arabie Saoudite** et au nord-ouest de la **Somalie**. Aucun criquet n'a été signalé à **Djibouti, Erythrée, Ethiopie, Oman**, ou dans la région de l'Est épidémie en **Iran**, au **Pakistan** ou de **l'Inde** au cours de Février.

**Prévisions:** Une reproduction à petite échelle est probablement légèrement augmenter le nombre SGR dans la région de l'Ouest épidémie au cours de la période de prévision. Criquets peuvent apparaître et se reproduire dans la région de l'épidémie centrale si la pluie tombe. Quelques adultes peuvent apparaître dans le sud-ouest du **Pakistan** et **l'Iran** au cours de la période de prévision.

## ACTIONS PRISES

**La Mauritanie** a poursuivi ses opérations de prospection et de lutte traités 1, 214 ha dans le Tiris Zemmour dans la partie nord du pays au cours de Février (5259 ha traités depuis le début du courant le 2 Novembre, 2015).

**Maroc** a poursuivi l'enquête dans la région de Dakhla - Oued Ed-Dahab, Laayoune-Sakia El Hamra et Guelmim-Oued Noun, ainsi que la province de Figuig au sud du pays et traité 1.041 ha au cours de Février (3663 ha ont été traités depuis le 23 Décembre). Deux avions de pulvérisation Turbo Thrush à voilure fixe sont en stand-by dans le Ed-Dahab Région Dakhla-Oued.

**FAO et le Maroc** / CNLAA ont fourni une formation à **l'Afghanistan** et le personnel du **Kirghizistan** pour améliorer la gestion acridienne en CAC et de renforcer la collaboration entre les pays ETOP. La formation a été réalisée du 31 Janvier au 17 Février et au siège de l'CNLAA dans Draa Region.

Centre de lutte antiacridienne nationale du **Mali** a lancé l'unité antiacridienne pour mener l'enquête et de rester à l'affût des cas où la situation de sécurité permettent l'accès aux régions du Nord.

Enquête couvrait plus de 27.000 ha dans les zones de reproduction hivernale au **Soudan**. Plus tôt, PPD / **Soudan** ont uni leurs forces avec son homologue **érythréen** et a mené des enquêtes à travers leurs frontières dans la région de la mer Rouge.

**DLCO-EA** a continué de surveiller la situation SGR en **Somalie** et d'autres pays membres, en collaboration avec leurs homologues nationaux.

Au **Yémen**, la situation de sécurité et le manque de ressources continuent d'être des obstacles à l'enquête et de surveillance des zones de reproduction et de foyer primaire (en particulier au nord de Tihama, le golfe d'Aden région, les zones côtières du sud et de l'intérieur) où la situation acridienne reste incertaine.

**USAID / OFDA / PSPM** surveille de près ETOPS à travers un dialogue régulier avec **PPDs / DPV**, unités nuisibles migrateurs nationales et les

organisations régionales et internationales, dont 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.

## AUTRES ETOPS

### Pine Bark Beetle Éclosions

**Honduras** souffre d'épidémies à grande échelle du dendroctone d'écorce de pin (**PBB**), qui est en train de détruire le pin et d'autres arbres. GoH a déclaré une catastrophe nationale et déployé des forces armées pour lutter contre le problème. Le pays a fait appel à la communauté internationale pour une aide à diminuer l'épidémie.

Le ravageur est également signalé affectant plusieurs autres pays d'Amérique centrale et du Sud, y compris le **Belize**, le **Brésil**, le **El Salvador**, le **Guatemala**, le **Nicaragua** et un impact sur l'écologie des forêts et de l'agroforesterie. Les coléoptères affectent gravement pins et autres arbres aux **Etats-Unis**, au **Canada** et au **Mexique**, où des millions d'arbres sont en train de mourir. En **Amérique du Nord (les montagnes Rocheuses)** les foyers sont attribués à plus chaud que les températures hivernales normales au cours de la dernière décennie, ce qui a créé des conditions écologiques favorables pour les coléoptères de persister. Cette situation est aggravée

par la baisse des précipitations que la normale qui affaiblit les arbres (NPS).

### **Rouge (Nomadic) Locust (NSE):**

Aucune mise à jour NSE ont été reçues des pays d'épidémie en Février, mais il est probable que différentes larves de stade sont présents dans Ikuu-Katavi et du Nord Rukwa (IRLCO-CSA).

### **Locust Madagascar migrateurs**

**(LMC):** La phase finale de la campagne de trois ans qui a débuté en Août 2015 est en cours. En date du 10 Février, 2016, il a déclaré traité / contrôlé 199.947 ha. Il a également contribué à la réduction significative du nombre de criquets, ainsi que les zones infestées. En conséquence, l'enquête et de contrôle sont limitées à la zone du foyer de sud-ouest. Avec les précipitations inférieures à la normale a rapporté, les criquets vont probablement se regrouper en taches de végétation verte et de la race au cours de la période de prévision.

### **Italien (CIT), du Maroc (DMA), d'Asie migrateurs (IMT) Criquets, l'Asie centrale et du Caucase**

**(CAC):** CAC restera calme jusqu'au printemps.

### **Chenille Légionnaire africaine**

**(AAW):** AAW ont été signalés en **Tanzanie**, au **Malawi** et au **Mozambique** en Février.

### **Arbre antiacridienne (Anacridium**

**sp.):** criquet arbre qui a été signalé dans le comté de Turkana au **Kenya** en Janvier persisté à Février.

**Quéléa (qqu):** qqu d'oiseaux ont pas été signalés au cours de Février.

*Sensibilisation accrue des autorités nationales et l'appui de l'USAID / OFDA et d'autres partenaires humanitaires / développement ont aidé les pays de première ligne et d'invasion primaire en Afrique du Nord et du Sahel en Afrique de l'Ouest, à savoir, l'Algérie, le Tchad, la Libye, le Mali, la Mauritanie, le Maroc, le Niger, le Sénégal et la Tunisie à établir unité autonome au niveau national pour la prévention et le contrôle des SGR.*  
Résumé 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. As a result, costly disposal operations have been minimized and the safety and well-being of their citizens and the environment improved.*

*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 [bit.ly/1PAydht](http://bit.ly/1PAydht). 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. OFDA-PSPM intends to extend 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 potential emergencies 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.*

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

## Weather and Ecological Conditions

In **Mauritania**, ecological conditions remained favorable during the 1<sup>st</sup> dekad of February in the winter-spring breeding areas in the north and north-east in Tiris Zemmour and Nouadhibou Dakhlet for locusts to survive and breed.

In **Mali**, ecological conditions continued to be less and less favorable during February for SGR to develop. Visibility has often been greatly reduced 3km (2 M) due to dust in the regions of Mopti, Timbuktu, Gao and Kidal and about 5 km (3 M) in Kayes, Koulikoro, Segou and Sikasso.

In **Morocco**, meteorological condition remained stable and ecological conditions remained favorable during February, particularly in the Adrar Settouf region in the south and southeastern parts of the country. Light showers were reported in a few places at a higher and mid-altitude of the Atlas Mountain (IRI-Columbia, 2/2016). The max temp ranged from 19 – 33 in the southeast to the Sahara region. The min temp was between 4 – 19 degree Centigrade at the Atlas to the southeast and the east of the country. The annual vegetation cover was usually green between Tichla Aousserd-Zemmour-Guelat and Es-Smara to south of Boujdour in the south.

In **Tunisia**, light showers were reported during February – 2 mm in Guettar-Gafsa and 11 mm in Bir Lahmar and Tataouine in the southwest and the extreme south of the country. **Libya**

remained dry for the most part of February with cool climate dominating. A satellite imagery indicated some greenness in a few places in the west (Alhamada Ahamra), southwest (Titaghsin and wade Armit), southeast (Eastern Lawenat & Arkno) and the center (Alharouj Alaswad) during the first dekad of February (CNLC/Libya, CNLA/Mauritania, CNLAA/Morocco, NCLA/Tunisia, CNLP/Mali, FAO-DLIS).

Ecological conditions largely remained unfavorable for SGR to persist and breed during February in winter breeding areas in the central outbreak region along the Red Sea coasts and the Arabian Peninsula. In **Sudan**, light to moderate rains were reported in areas neighboring Eritrea and in Tokar Delta. Patches of green vegetation were observed in wadis and areas of recent rainfall. No precipitation was reported in SGR breeding, outbreak and or primary invasion areas in **Eritrea, Ethiopia, Djibouti** or **northern Somalia** during February. Much of the vegetation was drying or dry and a few patches of green vegetation persisted in low laying areas. In **Yemen**, many of the winter breeding areas were not accessible to assess ecological conditions. In **Oman**, light to heavy rains were reported in Sharqiya, Dakhiliya, Battinah, Bureimi and Musandam Regions during the 2<sup>nd</sup> and 3<sup>rd</sup> dekads of February and ecological conditions are becoming favorable for SGR to breed in areas of recent rainfall (DLMCC/Yemen, LCC/Oman, PPD/Sudan).

Mostly hot (cool nights) and dry weather dominated the scheduled desert areas (SDA) in Rajasthan, **India** and only light showers were reported in Suratgarh and Bikaner during the 2<sup>nd</sup> half of February. Sparse vegetation was reported in SDA and medium to dense vegetation was

noted in parts of Jodhpur and Jaisalmer districts (DPPQS/India).

Light to moderate rains were reported in some of the NSE outbreak areas (Table 1). Partial flooding occurred in the Wembere plains in **Tanzania**. Below normal rains were recorded in Buzi Gorongosa and Dimba plains in **Mozambique**. The flooding of the Wembere plains and below normal rains in Buzi-Gorongosa and Dimba plains might negatively impact NSE breeding in these outbreak areas.

Table 1: Rainfall (millimeters) recorded at locations near NSE outbreak areas February 2016, (source: IRLCO-CSA).

Country, Station, outbreak area	Rainfall/mm
<b>Tanzania</b>	
Masenge: Wembere lains	92
Kaliua: Malagarasi Basin	412.5
Mpanda: Iku-Katavi plains	DNA
Muze : Lake Rukwa plains	100.9
<b>Mozambique</b>	
Mafambisse: Buzi plain	data not available at the time this report was compiled
Buzi: Buzi plain	
Gorongosa: Gorongosa plain	
Caia: Dimba plain	
<b>Malawi</b>	
Makoka: Lake Chilwa	data not available at the time this report was compiled
Ntanja: Lake Chiuta	
Salima: Mptasanjoka	
<b>Zambia</b>	
Namwala: Kafue Flats	

In CAC, generally dry and cool to cold weather persisted during February.

Above normal rainfall is likely over portions of the Greater Horn of Africa including most of Ethiopia, Kenya, southern Somalia, Rwanda, Uganda, Burundi and northern Tanzania. Gulf of Guinea coast and the eastern parts of Southern Africa including most of Mozambique, Zambia, Zimbabwe, east-central South Africa, Lesotho, western part of Madagascar and northern

Namibia will likely experience below normal precipitation during Mar-Apr-May 2016. South and southwest Asia will likely experience largely dry season with the exception of some mountainous areas of Afghanistan, Pakistan and India. Sri Lanka and southern tip of India expect below normal rainfall during Mar-Apr-May (NOAA, 2/2016).

### ***El Niño/La Niña and SGR outbreak.***

*El Niño often affects the Central Outbreak Region (the Horn of Africa and the Arabian Peninsula) due to the above average rainfall during winter and wetter than normal long spring (April-June). Rain has already increased across parts of eastern Africa and the Horn (NOAA, OFDA/Hydromet). Above-average rainfall over the Horn of Africa, southern Red Sea region and Gulf of Aden could mean increased SGR development in these areas, including northwest coast of **Somalia**, much similar to an event that occurred during the El Niño of 1997-1998. Above normal precipitation could also lead to increased AAW outbreaks.*

***Southern Africa - Namibia, Zimbabwe, Botswana, Angola, South Africa, Lesotho, Swaziland, and the southern half of Mozambique are experiencing severe drought due to El Niño effect, especially South Africa is very dry right now due to failed last year's monsoon rains.***

*During the 1987-89 SGR plague, USG, primarily through OFDA, provided close to USD 60 million to support the international campaign that required more than USD 300 million to abate the plague. In the 2003-05 SGR upsurges that affected more than 25 countries across Sahel, North Africa, the Red Sea coasts and the Middle East, USAID deployed a 30 day DART and contributed*

*more than USD 21 million to abate the upsurges and assist communities, that were severely affected by the SGR outbreaks. The upsurges required hundreds of millions of USD to control and assist affected farmers and rural communities (OFDA).*

**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 on the increase 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 habitats remain critical to help avoid and minimize potential damages to crops, pasture, livestock and reduce subsequent negative impacts on food security and*

*livelihoods of vulnerable populations and communities. End note.*

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

**SGR – Western Outbreak Region:** In **Mauritania**, SGR persisted in February in Tiris Zemmour in the northern part of the country where ecological conditions remained favorable. Groups of immature and mature adults and hoppers were treated on 1, 214 ha in the northern part of the country (bringing total areas treated since the beginning of the current that started on November 2, 2015 to 5,259). A few solitary immature and mature adults were reported between Inchikar and Darssal in Timetrine in northern **Mali** and small-scale breeding continued in a few places in Temesna and Tazezait Plateau in **Niger** during February (CNLCP/Mali, FAO-DLIS).

In **Morocco**, ground survey and control operations continued in Adrar Settouf in the vicinity of Aousserd and Tichla in Dakhla-Oued Ed-Dahab Region south of the country. Control operations treated scattered and groups of immature and mature copulating adults at an average density of 1 adult/m<sup>2</sup> in ten (10) locations each location ranging from 12 to 200 ha on a total of 1,041 ha (3,663 ha have been treated since the current campaign began on December 23, 2015. Scattered immature and mature adults and groups of low density 2<sup>nd</sup> to 5<sup>th</sup> instar hoppers were also observed in Tichla zone Graret Ignine (21°37'22 "N 015°26'25"O) in **Morocco** towards the end of the 3<sup>rd</sup> dekad, but control operations were postponed due to very strong wind. Immature and mature adults persisted in western south of Tindouf and west of Tamanrasset in the southern Sahara region in **Algeria**. No surveys

were carried out and no locusts were reported in **Chad**, **Senegal**, **Libya** or **Tunisia** in February.

**Forecast:** In **Mauritania**, favorable ecological conditions will likely sustain survival and reproduction of SGR in Tiris Zemmour in the northern part of the country and demand continued control operations. Favorable ecological conditions that persisted in Aousserd and Tichla in the Adrar Settouf Region in southern **Morocco**, will cause locusts to further breed and hoppers to further develop during the forecast period. Southwestern **Algeria** will likely experience increased SGR presence and small-scale breeding. Low numbers of adults will likely persist in a few areas of green vegetation in Timetrine, Tilemsi and Adrar des Iforas in **Mali** and in Tamesna in **Niger**. Isolated adults may appear in southwest **Libya** near Ghat and begin breeding in areas where rainfall was reported earlier. **Tunisia** will likely remain calm during the forecast period (CNLCP/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Niger, OFDA/AELGA, FAO-ECLO, NALC/Chad, NLCC/Libya).

*Increased vigilance and timely preventive interventions remain imperative to minimize any significant SGR impact on food security and livelihoods of vulnerable populations.*

**SGR (Desert Locust) - Central Outbreak Region:** In **Sudan** the SGR situation remained calm during February and only low density scattered solitary individuals were detected in some 1,200 ha during surveys that covered more than 27,080 ha along northern, central and southern Red Sea coast. No locusts were reported in **Egypt**. The country has 13 primary locust bases and 52 sub-bases, some 68,010 I of ULV and EC

pesticides, scores of vehicles, sprayers and campaign equipment for survey and control operations.

No locusts were reported in **Eritrea**, **Ethiopia** or **Djibouti** during February. In **Somalia** a few scattered early instar hoppers were reported in the northwest coast. DLCO-EA coordinates deployment of one of its spray aircraft to Dire Dawa, **Ethiopia** to support aerial surveillance/control in northern **Somalia** and neighboring areas.

**Yemen:** Limited surveys were carried out in a few accessible locations in winter breeding areas during February. A few scattered immature and mature adults were detected on the Red Sea coasts between Al Zuhran and Hodeida in **Yemen**.

DLMCC/**Yemen** is preoccupied with lack of adequate resources and the insecurity situation that continue undermining comprehensive survey and monitoring operations. Unless timely survey and monitoring are launched and preventive control interventions are effected, the SGR situation could further develop and pose a threat to crops and pasture of rural communities whose food security and livelihoods are already precarious. DLMCC received some assistance from CRC to carry out survey operations and requested additional assistance from external sources to continue survey and prepare for control interventions (DLMCC/Yemen).

In **Oman**, the SGR situation remained calm during February and no locusts were detected during surveys carried out in several locations in Musandam Governorate and Bureimi, Dakhiliya, Sharqiya and Dhofar regions during this period.

Survey operations detected low numbers of solitary immature adults on the southern Red Sea coastal plains and near Qunifdah in **Saudi Arabia**.

**Forecast:** In **Sudan**, SGR will further concentrate in patches of green vegetation mainly in Tokar Delta and the southern Red Sea coast and remain scattered solitary in drier areas. As the temperature rises and conditions gradually become favorable, low numbers of locusts are expected to appear and begin breeding on a small-scale in areas where residual populations were detected and rains have fallen in the central outbreak region. However, major developments are not likely during the forecast period (DLMCC/Yemen, LCC/Oman, PPD/Sudan).

**SGR - Eastern Outbreak Region:** No locusts were detected during surveys carried out in the scheduled desert areas in Rajasthan, India were reported in **Iran** or **Pakistan** during February.

**Forecast:** Small-scale breeding may occur in southeast **Iran** and southwest **Pakistan** during the forecast period (FAO-DLIS, OFDA/AELGA).

**Red (Nomadic) Locust (NSE):** No NSE updates were received from the outbreak countries in February. Comprehensive ground or aerial surveys have not been carried out since last fall and it is not possible to accurately determine the locust situation in the primary outbreak areas in Wembere, Ikuu-Katavi, and Lake Rukwa plains as well as Malagarasi Basin and Bahi Valley in **Tanzania**. Information from Lake Chlwa/Lake Chiuta plains in **Malawi**, Buzi-Gorongosa plains in **Mozambique**, Kafue Flats, Lukanga Swamps and Mweru wa Ntipa plains in **Zambia** are also not current. However, it is likely that different instar hoppers with

varied densities are present in Ikuu-Katavi and North Rukwa plains where large parental populations persisted last fall.

There is an urgent need to survey all primary outbreak areas regularly and report locust sightings to concerned entities on a timely basis. IRLCO-CSA continues its appeal to Member-Countries to urgently provide resources to carry out timely survey and preventive control interventions and avoid potential damage to crops and pasture (IRLCO-CSA).

**Forecast:** Late instar hopper will likely fledge during the forecast period in all primary outbreak areas where ecological conditions are favorable. IRLCO-CSA intends to launch ground and aerial surveys to establish the NSE status and launch targeted control provided it can secure sufficient resources to support ground and aerial operations (IRLCO-CSA).

**Madagascar Migratory Locust (LMC):** The final phase of the three-year locust campaign that began in late August, 2015 is in progress. The campaign has contributed to the significant reduction in areas over which locusts are detected. Survey and targeted control are limited to the southwest outbreak region where the 2<sup>nd</sup> generation hoppers are fledging in areas where the rainy season is in progress, but rainfall is scanty and conditions are not that much suitable for locusts to develop. Active surveillance is required particularly in areas where vegetation is green and locusts have begun regrouping. As of February 10, 2016, the 3<sup>rd</sup> phase of the campaign has treated 199,947 ha (153,160 barrier and 46,787 full coverage treatments) (FAO-ECLO).

**Forecast:** Vegetation in the southwest and will likely allow locusts to further develop in areas that are inaccessible by ground means and require aerial surveys and strategic control operations.

**Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC):** Locust activities were not reported during February in the CAC region where ecological conditions are still unfavorable (cold dry weather).

**Forecast:** Locust activities will start appearing during the forecast period (OFDA/AELGA).

***Italian, Migratory and Moroccan locusts are a constant threat to the CAC region. These pests can 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 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. Most of the countries affected by the three locust species lack well established capacity to effectively prevent and control these pests.***

**Timor and South Pacific:** No update was received from East Timor during February.

**African Armyworm (AAW):** A late received update reported AAW outbreaks attacking maize, sorghum, rice and pasture in **Malawi** and **Tanzania**.

In **Malawi**, the outbreaks were first detected late December in Kasungu, Machinga, Salima, Blantyre and Shire Valley Agricultural Development Divisions (ADD) and continued into January. The pest caused mild to moderate damage to maize, sorghum, rice and pasture in 2,864 ha and affected 9,324 households (Table 2). Affected farmers carried out control with material and technical support from the Ministry of Agriculture, Irrigation and Water Development (IRLCO-CSA).

Table 2: Summary of AAW outbreaks in Malawi in December and January combined (IRLCO-CSA, 1/2016).

ADD	District	Hectares affected	Household affected
Kasungu	Mchinji	100	1,110
Machinga	Mangochi, Zomba, Machinga, Balaka	251	809
Salima	Salima, Nkotakota	264.5	665
Blantyre	Phalombe, Mulanje, Chiradzulu	332.5	1,137
Shire Valley	Chikwawa	129.8	3,841

In **Tanzania**, AAW outbreaks were reported on maize, rice and pasture in Liwale district of Lindi Region during January. The outbreaks continued in February and reached Dar es Salaam (Mbagala area), Coast (Kibaha district) and Arusha Region (Meru District – see below photo from CBAMFEW project partner). Affected farmers carried out control with technical and material assistance from the Ministry of Agriculture, Food Security and Cooperatives. Moth catches were also reported in Morogoro, Mbeya, Arusha and



Manyara regions in **Tanzania** during this month.

In **Mozambique**, AAW outbreaks were reported in Manica, Sofala and Zambezia Provinces and control operations were launched by the affected farmers (details were not available at the time this report was compiled).

**Forecast:** The AAW season will gradually end in the southcentral and southern outbreak regions in **Malawi**, **Mozambique**, **Zambia** and **Zimbabwe** during the forecast period, but will continue in **Tanzania** and commence in **Kenya** during the forecast period. AAW coordinators and CBAMFEW and non-CBAMFEW forecasters are advised to remain vigilant and rapidly report trap catches to concerned authorities for timely interventions (IRLCO-CSA, OFDA/AELGA).

#### **Tree locust - *Anacridium sp.***

A late received update reported the presence of a tree locust outbreak in Turkana County in **Kenya** in January. The pest persisted through February and **Kenya** Crop Protection Division of the Ministry of Agriculture, Livestock and Fisheries was planning an assessment and control operations (IRLCO-CSA).

**Quelea (QQU):** QQU bird outbreaks were not reported in most of the primary outbreak areas during February. However, flocks of QQU birds were detected in Dodoma, Singinda, and Shinyanga Regions in **Tanzania**. The National Plant Health Services of the Ministry of Agriculture, Food Security and Cooperatives is preparing to carry out control operations (IRLCO-CSA).

**Forecast:** QQU outbreaks will likely commence in **Tanzania** and **Zimbabwe** and threaten rain fed and irrigated small grain cereal crops. The birds will likely be a problem to irrigated rice crops in Kisumu, Busia and Siaya Counties in **Kenya**. The birds will also threaten wheat crops in the Rift Valley Province of **Kenya** and rice, sorghum and millet in Dodoma, Singinda, Tabora and Shinyanga Regions of **Tanzania** sometime in May.

**Facts:** QQU birds can travel ~100 km/day in search of food. An adult QQU bird can consume 3-5 grams of grain and destroy the same amount each day. A medium density QQU colony can contain up to a million or more birds and is capable of consuming and destroying 6,000 to 10,000 kg of seeds/day, enough to feed 12,000-20,000 people/day (OFDA/AELGA).

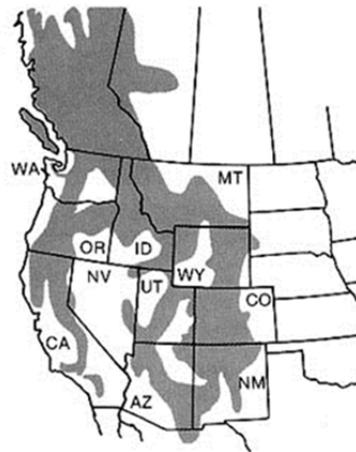
**Rodents:** No update was received on rodent pests for February. However, rodents are a constant threat to crops in the field as well as storage facilities and must be regularly monitored and abated.

### **Pine Bark Beetle Outbreaks:**

**Honduras and North America** are experiencing large-scale outbreaks of the pine bark beetle (PBB) which is destroying pine and other trees. GoH has declared a national disaster and deployed armed forces to tackle the problem. It is

also appealing to the international community for assistance to control the outbreak. The pest is reported affecting several other countries in Central and South American, including **Beliz, Brazil, El Salvador, Guatamala, Nicaragua** and impacting agroforestry and the countries' lumber industry. The PBB is also severely affecting pine and other trees in the **USA, Canada and Mexico** where millions of trees are dying from beetle damage (the map below shows areas in North America, where the PBB outbreak is killing trees. source: National Park Service - NPS).

The PBB eggs and larvae (grubs) that normally cannot survive severe cold winter and hibernate under dead leaves and barks or die can now adjust to the



relatively mild winter temperatures caused by increasingly warmer winter weather in the Rocky Mountains over the past decade.

Furthermore, the prolonged below normal precipitation continuously weakens the trees. These two factors combined have created favorable conditions for the beetles to persist and break out over vast areas (NPS).

**All ETOP front-line line countries** must maintain regular monitoring and 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

and timely as possible. 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

During February, Morocco and Mauritania treated 1,041 and 1,214 ha respectively, 2,255 ha in total.

**Note:** SGR invasions countries in West and North West Africa reported large inventories of obsolete pesticide stocks, some dating as far back as 2003-05 and earlier locust campaigns. Safe disposal of these stocks will require considerable amount of resources. **End note.**

**Note:** A Sustainable Pesticide Stewardship (SPS) can strengthen the 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/AELGA** encourages exploring 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

Country	Quantity (l/kg)*
Algeria	1,190,000~
Chad	44,500
Egypt	68,070~ (18,300 ULV, 49,770 l)
Eritrea	18,250~ + 20,000 <sup>D</sup>

Ethiopia	10,000~
Libya	25,000~
Madagascar	206,000~ + 100,000 <sup>D</sup>
Mali	27,000
Mauritania	7,788 + 10,000 <sup>D</sup>
Morocco	3,532,959 <sup>D</sup>
Niger	75,800~
Oman	10,000~
S. Arabia	100,000~
Senegal	156,000~
Sudan	171,780~
Tunisia	68,514 obsolete
Yemen	42,000 <sup>D</sup> + 300 kg GM~

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

~ data may not be current;

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

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

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

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

### LIST OF ACRONYMS

- AAW* African armyworm (*Spodoptera expempta*)  
*AELGA* Assistance for Emergency Locust Grasshopper Abatement  
*AFCS* Armyworm Forecasting and Control Services, Tanzania  
*AfDB* African Development Bank  
*AME* *Anacridium melanorhodon* (Tree Locust)  
*APLC* Australian Plague Locust Commission  
*APLC* Australian Plague Locust Commission

	<i>Bands groups of hoppers marching pretty much in the same direction</i>	GM	<i>GreenMuscle® (a fungal-based biopesticide)</i>
CAC	<i>Central Asia and the Caucasus</i>	ha	<i>hectare (= 10,000 sq. meters, about 2.471 acres)</i>
CBAMFEW	<i>Community-based armyworm monitoring, forecasting and early warning</i>	IRIN	<i>Integrated Regional Information Networks</i>
CERF	<i>Central Emergency Response Fund</i>	IRLCO-CSA	<i>International Red Locust Control Organization for Central and Southern Africa</i>
CIT	<i>Calliptamus italicus (Italian Locust)</i>	ITCZ	<i>Inter-Tropical Convergence Zone</i>
CLCPRO	<i>Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)</i>	ITF	<i>Inter-Tropical Convergence Front = ITCZ)</i>
CNLA(A)	<i>Centre National de Lutte Antiacridienne (National Locust Control Center)</i>	FAO-DLIS	<i>Food and Agriculture Organizations' Desert Locust Information Service</i>
CPD	<i>Crop Protection Division</i>	Hoppers	<i>young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)</i>
CRC	<i>Commission for Controlling Desert Locust in the Central Region</i>	JTWC	<i>Joint Typhoon Warning Center</i>
CTE	<i>Chortoicetes terminifera (Australian plague locust)</i>	Kg	<i>Kilogram (~2.2 pound)</i>
DDLC	<i>Department of Desert Locust Control</i>	L	<i>Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)</i>
DLCO-EA	<i>Desert Locust Control Organization for Eastern Africa</i>	LCC	<i>Locust Control Center, Oman</i>
DLMCC	<i>Desert Locust Monitoring and Control Center, Yemen</i>	LMC	<i>Locusta migratoriacapito (Malagasy locust)</i>
DMA	<i>Dociostaurus maroccanus (Moroccan Locust)</i>	LMM	<i>Locusta migratoria migratorioides (African Migratory Locust)</i>
DPPOS	<i>Department of Plant Protection and Quarantine Services, India</i>	LPA	<i>Locustana pardalina</i>
DPV	<i>Département Protection des Végétaux (Department of Plant Protection)</i>	MoAFSC	<i>Ministry of Agriculture, Food Security and Cooperatives</i>
ELO	<i>EMPRES Liaison Officers –</i>	MoAI	<i>Ministry of Agriculture and Irrigation</i>
EMPRES	<i>Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases</i>	MoARD	<i>Ministry of Agriculture and Rural Development</i>
ETOP	<i>Emergency Transboundary Outbreak Pest</i>	NALC	<i>National Agency for Locust Control</i>
Fledgling	<i>immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed</i>	NCDLC	<i>National Center for the Desert Locust Control, Libya</i>
		NOAA (US)	<i>National Oceanic and Aeronautic Administration</i>
		NPS	<i>National Park Services</i>
		NSD	<i>Republic of North Sudan</i>
		NSE	<i>Nomadacris septemfasciata (Red Locust)</i>
		OFDA	<i>Office of U.S. Foreign Disaster Assistance</i>
		PHD	<i>Plant Health Directorate</i>
		PHS	<i>Plant Health Services, MoA Tanzania</i>

*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*  
*SGR Schistoseca gregaria (the Desert*  
*Locust)*  
*SSD Republic of South Sudan*  
*SWAC South West Asia DL Commission*  
*PBB Pine Bark Beetle*  
*PSPM Preparation, Strategic Planning and*  
*Mitigation (formerly known as the*  
*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 cases.*  
*USAID the Unites States Agency for*  
*International Development*  
*UN the United Nations*  
*ZEL Zonocerus elegans, the elegant*  
*grasshopper*  
*ZVA Zonocerus variegatus, the*  
*variegated grasshopper (This*  
*insect 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*  
*perhaps due to climate anomalies,*  
*etc.).*

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### **Who you should contact:**

If you have any questions, comments or  
suggestions or know someone who would